FLIGHT

MAGAZINE

MARCH 1952
35 cents

AERO COMMANDER ON ITS WAY

See pages 14-15

The BENDIX IGNITION ANALYZER Checks Both Plugs and Ignition Units!

Result: ECONOMY

IGNITION UNITS AND SPARK PLUGS ARE NOT DISCARDED BEFORE THEIR TIME!

An airline recently reported that in one month it removed a great number of ignition units off schedule. Later tests showed that *73% of these units were satisfactory and never should have been removed from the engine.* Similar records for spark plugs showed that *94% of the plugs removed were still in good condition.* If your maintenance records show similar inefficiencies, you can correct the situation with a Bendix Ignition Analyzer. It is *the* analyzer that locates present and impending difficulties. Your men will be able to make fast correction by replacing *only* the bad part. Ignition units and plugs will give longer service . . . overhaul facilities can be substantially reduced . . . engine run-up time will be considerably lessened. Doesn't that make the use of a Bendix Ignition Analyzer for daily aircraft operation a must in your equipment planning?

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The Bendix Ignition Analyzer is available for either airborne or portable-airborne installations. It can be used with either high or low tension magneto or battery ignition. It is the ignition analyzer that can predict spark plug failure before it occurs . . . make an efficient check of more than one spark plug at a time and do so on a large, easy to read screen . . . yet it costs less than comparable analyzers.

Bendix

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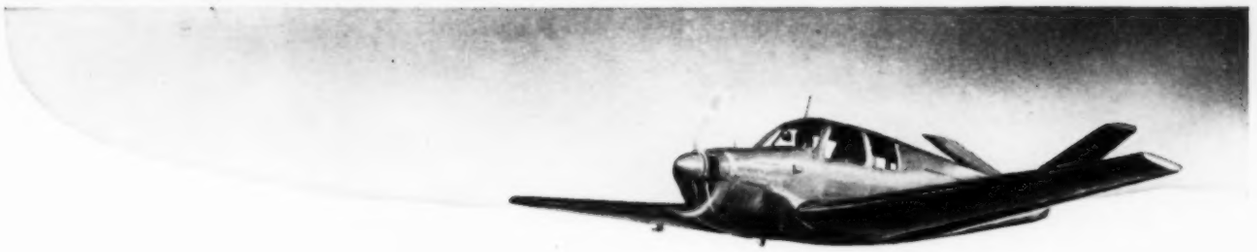
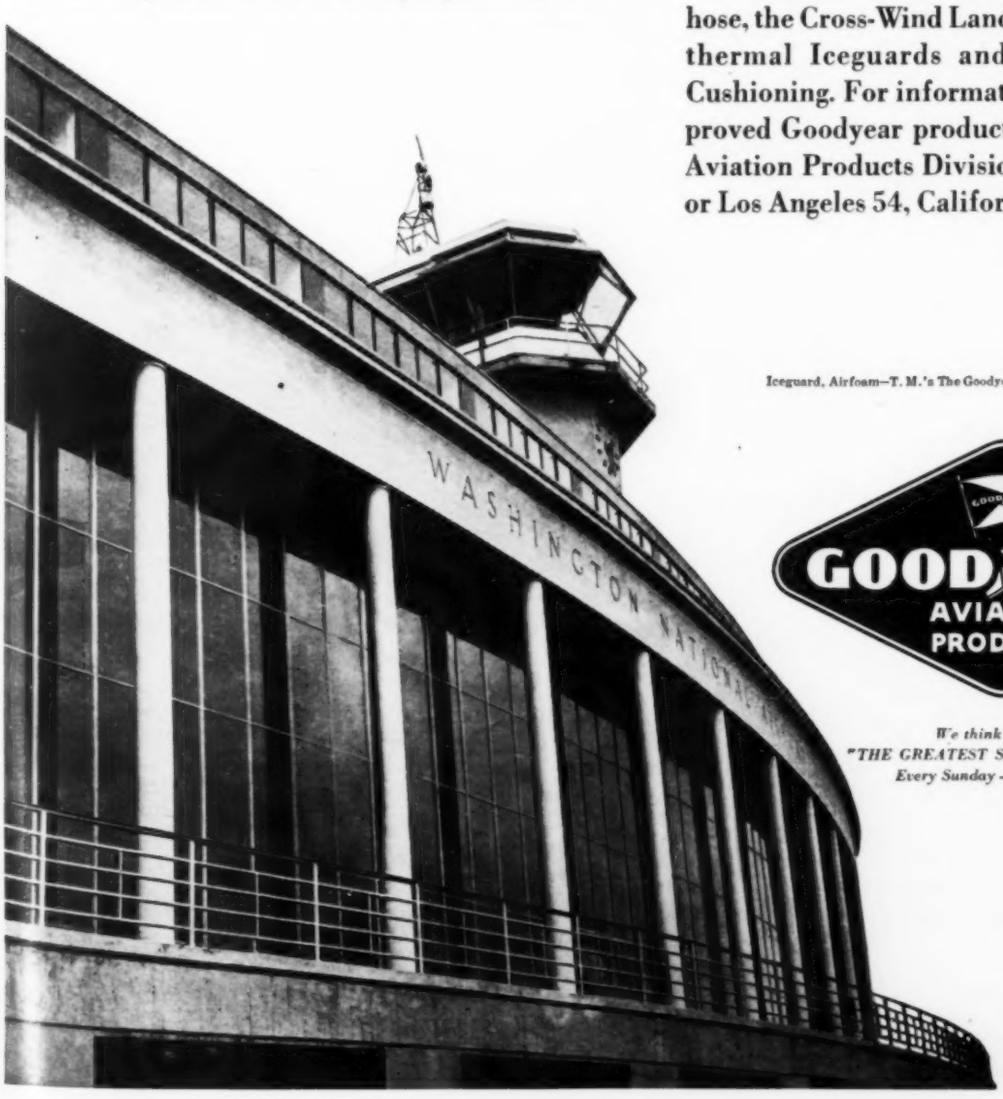


America NEEDS Its Private Aviation

IN times like these, civil aviation is an all-important part of the defense effort. Company-operated planes save valuable executive time — provide emergency liaison between production units—speed key men to conferences in Washington and elsewhere.

In peace or mobilization, civil aircraft play an important role in everyday fields, too — crop dusting, seeding, power line patrol and other vital services—saving valuable time and promoting efficient use of available man power.

That's why Goodyear—in spite of its increasingly heavy contribution to military flying—will maintain its services to private aviation with tires, tubes, wheels and brakes, aircraft hose, the Cross-Wind Landing Wheel, electrothermal Iceguards and Airfoam Super-Cushioning. For information on any of these proved Goodyear products, write Goodyear, Aviation Products Division, Akron 16, Ohio or Los Angeles 54, California.



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Now Flying—The F7U-3 Cutlass

The F7U-3 Cutlass, designed by Chance Vought Aircraft's engineers to outfly or out-fight any other carrier-based fighter in the world, has made its initial flight.

The twin-jet F7U-3 is larger but similar in appearance to the F7U-1. It promises to be an even more formidable weapon for the Navy's carrier-borne arsenal than its predecessor, the first swept wing, tailless fighter to fly from a flat-top.

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ALAMO AVIATION, INC.

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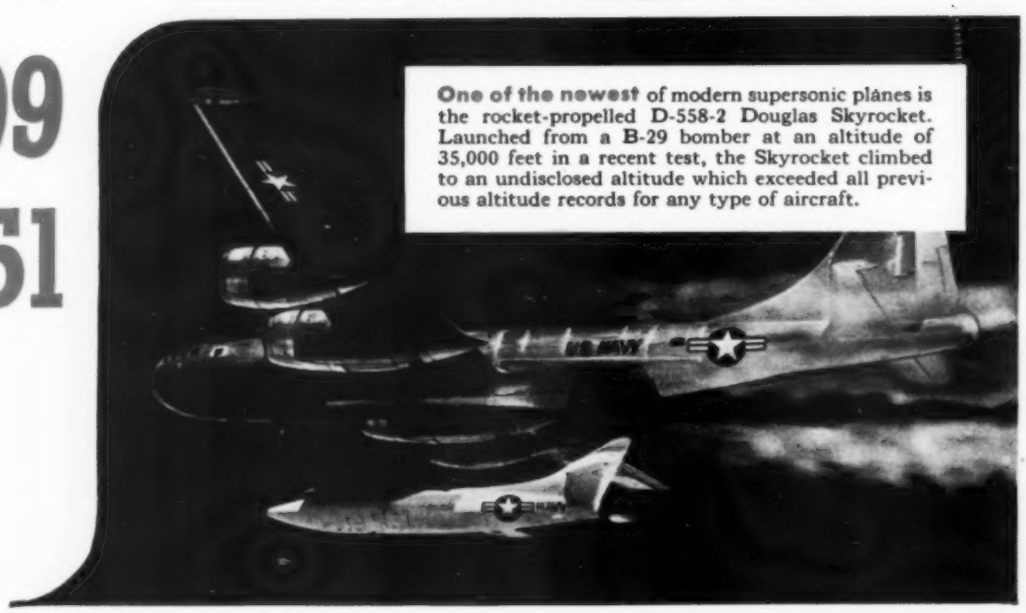
Phone Travis 2643

Record Breakers 1909 1951

154.5 kilometers in 2 hours 18.9 minutes (about 42 MPH) was a world's record *for speed* set by Hubert Latham, at Rheims in 1909. This same year Latham made two unsuccessful attempts to fly the English Channel but was forced down each time when his engine stalled.



One of the newest of modern supersonic planes is the rocket-propelled D-558-2 Douglas Skyrocket. Launched from a B-29 bomber at an altitude of 35,000 feet in a recent test, the Skyrocket climbed to an undisclosed altitude which exceeded all previous altitude records for any type of aircraft.

FROM THE EARLY yesterdays of aviation the name Phillips Petroleum Company has stood for dependable, high-quality products. Phillips Petroleum Company pioneered in the development of high-octane gasoline. Today Phillips is one of the largest gasoline suppliers for military, commercial and private planes. Phillips is also turning out fuels for turbo-props and jets. And in Phillips laboratories and testing fields, scientists are at work on new and tremendously more powerful fuels for the aircraft of tomorrow. For dependable aviation fuels and lubricants, think first of Phillips.

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Phillips 66

AVIATION PRODUCTS

LEROY R. GRUMMAN, chairman of Grumman Aircraft Engineering Corp., has received the 1951 honorary American fellowship award from the Institute of Aeronautical Sciences. He became a U. S. Navy pilot in 1918, served with Loening Aeronautical Corp. during 1920-29, and with associates organized Grumman Aircraft in 1929.

AIR Report

Significant Trends and News

PIPER'S NEW TWIN-ENGINE was unveiled as a prototype at last month's distributor sales meeting in Lock Haven. Called the "Piper-Stinson," it is a 4-5-place low-wing with nose wheel and dual fins and rudders. Piper hopes to be in production during 1953. No performance or specification details are available but engines are said to be new 135-hp. 4-cylinder Lycomings not yet in production. Target price is $25,000 or less. All of the airplane except a small after-section of the fuselage is metal-covered. Fuselage structure is of welded steel. It was pointed out that this type of construction will not "freeze" the design at this time but will permit modifications and variations in accordance with power and performance requirements. Landing gear is retractable. The twin's announcement has been source of much encouragement to Piper distributors and dealers, who compare Piper's entry into this new market with the factory's development of the original $3,000 "Clipper," which rocketed the company into the 4-place market now represented by the fast-selling Pacer.

NEW $66,000 PRICE TAG ON AERO COMMANDER became effective on all orders received after February 1, according to R. T. Amis, president of Aero Design & Engineering Co. Former price was $49,000. Rising materials, purchased parts and labor costs were cited as the reason for the increase.

UNITY IN AVIATION RANKS might pay off with passage of a reframed Civil Airmen Training Act during this session of Congress. Congressman Lindley Beckworth of Texas and Senator Edwin Johnson of Colorado are principal backers. Aeronautical Training Society has joined hands with National Aviation Trades Association to push the legislation and help sell the military. Chances of passage are good if all interested civil airmen and associations will work. Friends in Defense Air Transport Administration and CAA are helping. May be tagged emergency legislation.

AIR FORCE EVALUATION OF THE F7U TWIN-JET TAILLESS NAVY CUTLASS FOR POSSIBLE FUTURE ORDERS appeared probable last month after two sonic thunderclaps shook Dallas. Chance Vought Aircraft revealed they were caused by USAF pilots diving Navy F7U-1 Cutlasses.

AIR TAXIS HAVE BEEN RELIEVED OF CAR 291. Henceforth operators of aircraft of 12,500 lbs. or less maximum certificated take-off weight (small irregular carriers) will no longer require letters of registration by the Civil Aeronautics Board, and any person desiring to engage in air taxi service will be permitted to do so under CAR Part 298 irrespective of the number of units operated.

THE SOUTH'S SECOND TRANSCONTINENTAL AIR SERVICE will result from the CAB's recent authorization of a Braniff-Eastern-TWA interchange between Miami and Los Angeles-San Francisco via Houston, Dallas and Amarillo.

CAA'S AIRPORT MANAGEMENT SERVICE, widely praised for its valuable work with assisting airport managers attain self-sufficiency and with actually saving some airports from abandonment, will be eliminated if the present CAA budget recommendations are approved. Protests have gone from airport managers to CAA,

(Continued on page 27)

FLIGHT MAGAZINE

Including SOUTHERN FLIGHT and MODERN AIRPORTS

MARCH, 1952 VOL. 37, No. 3

COVER: Aero Commander deliveries began last month from the factory at Tulakes Airport in Oklahoma City and we were there to get some pictures of No. 4 airplane off the line, using one on the cover and others with details of the airplane starting on pages 14-15 of this issue. No. 4 was going to S. D. Murphy of Indianapolis. Mr. Murphy's Aero Commander is painted dark blue and cream, with a red stripe.
—(FLIGHT MAGAZINE Photo.)

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GEORGE E. HADDAWAY, Editor-Publisher; TOM ASHLEY, Managing Editor; FRED N. STONES, JR., Business Manager, P. O. Box 750 (1901 McKinney Ave.), Dallas, Texas

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Incomparable

a pretty girl

Ann Diller likes the wide open spaces and the tang of a fresh March wind. She is 18, with blue eyes and blonde tresses. Her favorite hobbies are riding horseback, fishing, camping, and swimming. A talented miss, Ann plays both the piano and the organ. She recently finished high school and modeling school. (No. 6 in a series of pretty Dallas girls discovered and photographed especially for Southwest Airmotive).

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EDITORIALS

SAFETY THROUGH HONESTY

NOBODY can be expected to remain calm when over 100 lives are lost in three successive air accidents such as occurred on December 16, January 22 and February 11 at Elizabeth, New Jersey. These disasters, so closely grouped and all confined to one city, brought public clamor for action to prevent a recurrence. Nothing less than a thorough evaluation of facts and circumstances relating to the accidents will satisfy public demands for action, to be followed by effective steps to achieve maximum possible safety in air transportation.

Speculation over the causes of air accidents has confused a crash-jittery public. These accidents will receive the most thorough probing ever undertaken by air safety authorities, both by the aviation industry and by the government. Not until the findings are available can the important job of preventing a recurrence proceed on a sensible, logical basis with every expectation of accomplishing greater future safety in the air than existed at the time of the three disasters.

Some of us are prone to believe that the location of residential or built-up areas off the ends of the airport runways, such as at Elizabeth, renders airports unsafe. Scores of the country's busiest air terminals would have to be closed if that reasoning prevailed. Yet the fact remains that clear approaches to runways are essential for absolute safety.

Hangar talk usually gets around to the adequacy of equipment maintenance. Modern transport aircraft and their power plants and accessories are far more complex than the familiar DC-3. They are also flown more hours per day, perform more work through speed increases, involve far greater maintenance. More weather flying, lower weather minimums, gadgetry and gimmicks, a reliance on propeller reversing for braking to a stop on the runway, automatic devices which make possible greater loads or speeds—these and many technical complexities make today's 300-mph. transport a far different safety problem than yesterday's slower, less complicated airplane. But can we afford to condemn the trend, in view of a safety record that is actually better today than it used to be, and in view of experience showing that air transportation's usefulness and growth are apparently dependent on gadgetry and complexities?

The most sensible answer, we think, is one which appeared months ago in a bulletin prepared by a large airline and distributed among its operations personnel. The Flight Safety Foundation, directed by Jerome Lederer, brought the bulletin to light originally on July 10, 1950, under the caption, "To Thine Own Self Be True." What this airline had to say is more appropriate today than it was a year ago. We quote from it:

"The air transport industry has now reached a stage of development at which it is no longer possible to think in terms of calculated risk. We must gear our thinking to absolute safety. . . . We can do one of two things. We can close our eyes and hope that we will not experience another similar period or, we can haul our entire operation out on the table and take a good, hard look and endeavor to correct all those contributing factors which we believe will or can lead us into trouble.

"It is human nature to excuse our performance or shortcomings. In doing so, we all too often wait until tomorrow to go through an honest analysis of ourselves. In this business tomorrow is too late.

"This does not mean that we should start out on a witch hunt and tear things apart, but it does mean that if we logically find something wrong we have to get in the habit of doing a thorough job of fixing it—today. 'Thou can'st not then be false to any man'."

We think this should be heeded by the aviation industry as a whole, as well as by the air carriers. We believe it applies to Cubs and Constellations alike. We would like to see the operators of small shops and crop dusting and spraying outfits adopt such a creed as well as the country's largest airlines. For the lesson is a clear and important one to all concerned with air safety—no one likes to see people killed or injured nor can an operator or his industry stand the repeated economic setbacks which accompany a series of accidents.

HOW TO WRECK AN ORGANIZATION

THE recent shake-up of Civil Aeronautics Administration aviation safety personnel, the proposed elimination of airport management consultants in the field and a serious cut-back in air traffic control personnel have combined to bring CAA morale to the lowest point in many years. These actions serve only to dangerously reduce the CAA's effectiveness in the vital areas of aviation safety and development.

Practically every one of these decisions came as a surprise. The manner in which they were carried out smacks of behind-the-scene operations at the Washington level without prior consultation with industry or congressional friends of civil aviation. It now appears that the postwar era of CAA-industry cooperation is fast coming to an end.

The consolidation and concentration of aviation safety activities in the field under the aviation safety reorganization program is all right. What we protest is the shuffling of regional aviation safety veterans all over the map and the methods used to justify the wholesale shake-up. As we understand it some 310 men

(Continued on page 38)

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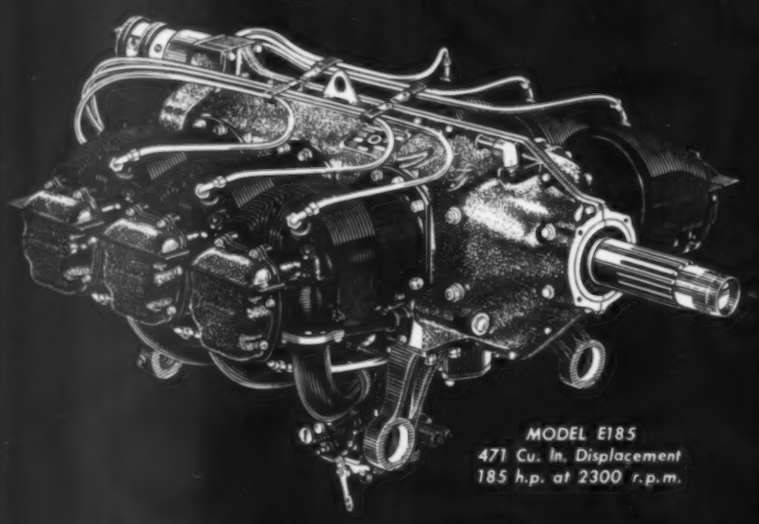

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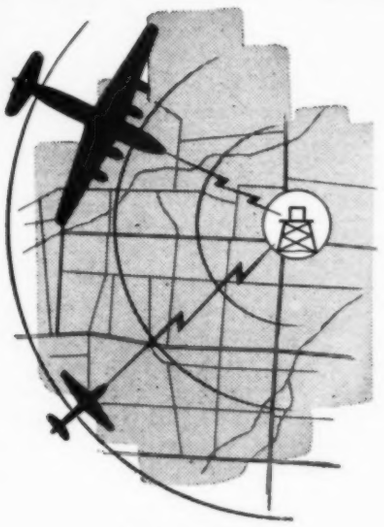

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The Birdmen's Perch

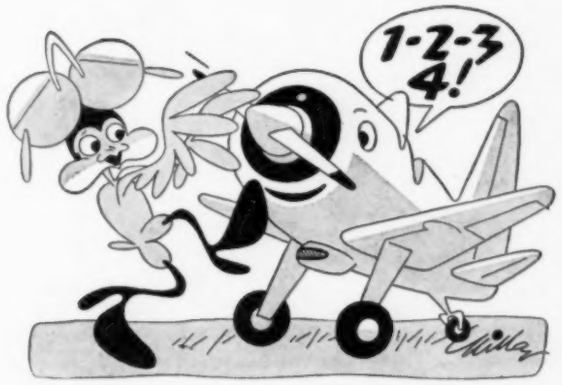
Avast there, mates! All at sea about the change from mph to *knots* in weather reports? For quick calculations, this easy rule-of-thumb will give you a close-enough answer: Take speed in knots, add 15%, and you've got mph.

Is "hot-headedness" costing you money? "Flutter" refers, Boys and Girls, to abnormal high cylinder-head temperature. When that needle goes up, you may be getting *detonation*—and serious engine damage. What should you do about it?

Well, if you are taxiing—reduce power immediately. Be sure that your cowl flaps are open. Avoid prolonged engine run-up.

If you are in the air, reduce throttle settings and adjust for a richer mixture if your plane has a mixture control. If you do not have a mixture control, land as soon as possible for a carburetor adjustment. Open cowl flaps. If your plane has a variable-pitch prop, increase RPM.

Best friend a radial engine ever had—whether it's in frequent operation, or dead storage



For frequent operation: treat it to Gulf Aircraft Engine Oil, Series R—the very finest non-detergent, straight mineral oil for radial engines (or for any engine when operating conditions do not require a detergent oil). It's approved by Pratt & Whitney and other manufacturers for all types of service.

For dead storage (or infrequent use): keep filled with you-know-what (see paragraph above). And then remember to pull the prop through at least four turns every three days.

P.S.: In horizontally opposed and Ranger in-line engines, use Gulfpride Aviation Oil, Series-D.

FREE! A "must" for active pilots. That's the *Gulf Airgide Airport Directory*. Ask your Gulf Airport dealer for a copy.

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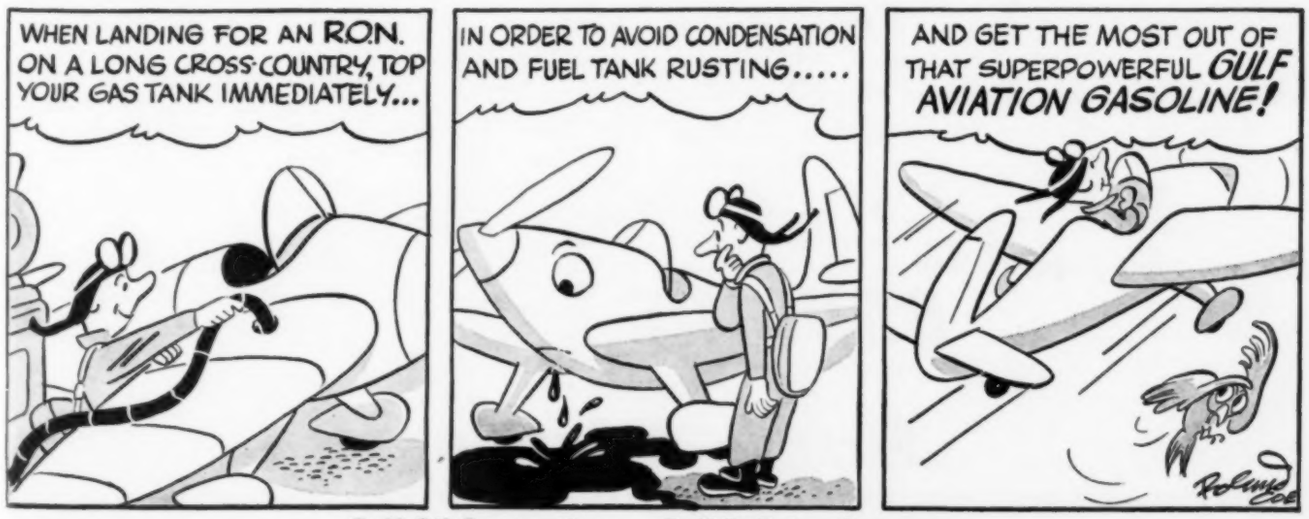
WHEN LANDING FOR AN R.O.N. ON A LONG CROSS-COUNTRY, TOP YOUR GAS TANK IMMEDIATELY...
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Now in production at Douglas is an even more versatile member of the AD series. It's the AD5, which can be modified for use as a 6-place transport, 12-place evacuation ship, photographic plane, litter carrier, long-range bomber, attack bomber, or radar-equipped "eyes of the fleet."

Because it *does* take both time and money to produce good airplanes, Douglas works far ahead on design and development so when the call to battle stations comes, the planes will be there. Douglas Aircraft Company, Inc.

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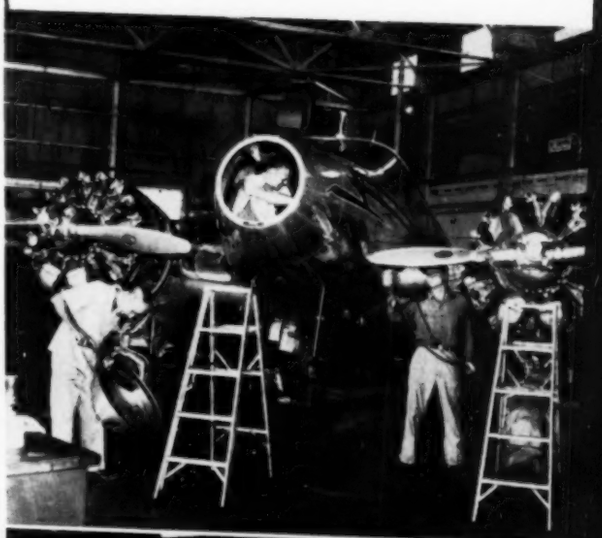

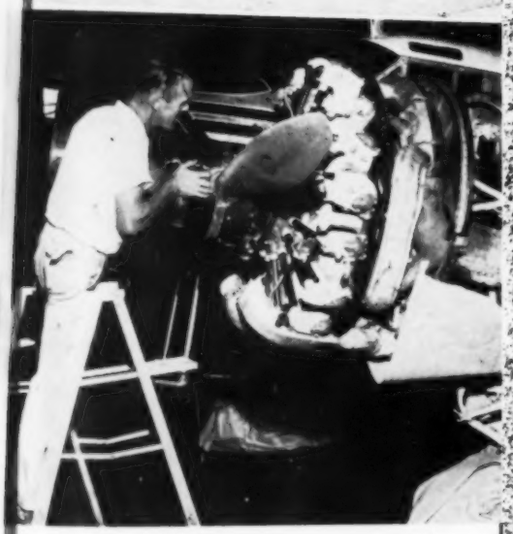

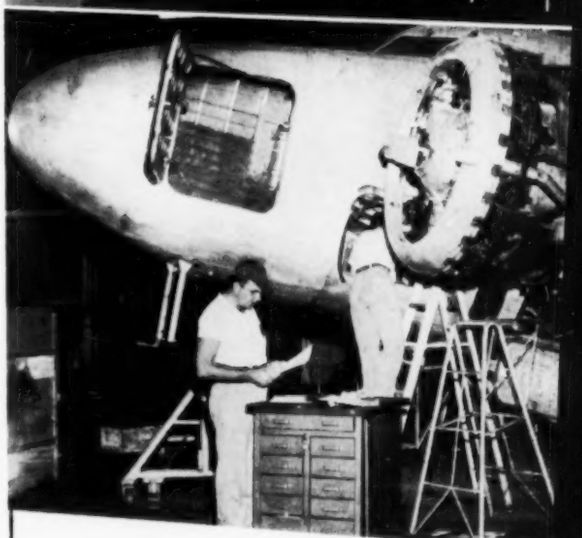

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Striking paint job on No. 4 Aero Commander emphasizes clean lines of the high-wing, 5-6-place twin. Note stainless-steel exhaust augmentor tube on engine nacelle paralleling thrust line. Completely-equipped price is $66,000. Performance includes 197-mph. cruising speed.
—(FLIGHT MAGAZINE Photo.)

First Off the Line

Aero Commander deliveries have started from the industry's newest factory. Here are first details of Model 520

First three Model 520's are shown in flight formation. No. 1 (painted) is factory test plane, No. 2 (off its wing) went to Chicago Tribune and No. 3 went to S. D. Murphy, Indianapolis, Ind. Commander placard speeds as marked on air speed indicator are 60-125 mph. IAS for extending flaps and gear (white line); 69-200 mph. IAS cruising range (green line); 200 to 270 mph. IAS cautionary range (yellow line); and 270 mph. IAS maximum allowable air speed in smooth air (red line). It was dived for CAA at more than 300 mph. IAS in flight tests to establish 270-mph. red-line placard.
—(Aero Design & Engineering Photo.)

By TOM ASHLEY

WE were all smiling on the factory ramp, but the pilot in the new airplane's cockpit wore the biggest grin of the lot. He nudged the two Lycoming 260's to roll out for take-off and the flight home. It was the first delivery of the new 200-mph. 5-6-place, twin-engine Aero Commander, just handed over to the *Chicago Tribune*, whose publisher has been using private planes for business travel since 1919. His aviation editor, Wayne Thomis, took delivery.

The moan of exhaust from the departing Aero Commander's augmentor tubes was happy music on the ramp of Aero Design and Engineering Company of Oklahoma City. Ted Smith, the general manager, expressed everybody's feelings. "We're on our way," he said proudly. Two more Commanders were on the ramp awaiting delivery in February. He said 3 more would go out during March. Inside, the production line was humming and Ted was certain he could deliver 50 more, which were already on order, long before the end of the year—maybe twice that many before December 31.

Just a year ago, in January, 1951, the factory came into being when the first machines and materials were moved in. In less than 14 months it had evolved from the order-taking stage through the production line and airplanes were being readied for fly-away. It had been a modern example

of commercial aviation industry growth—history in the making as a new factory was born to build a new design, adding a facility with tooling, machinery, skills which had not existed a year ago. For the customers it all adds up to a new airplane, something really new in a small-transport configuration.

Coincident with its first delivery, the company announced a new price of $66,000 for the Aero Commander, effective February 1 and applying to all orders received after that date. The original price was $45,000, at which some 30-odd firm orders are to be filled. Twenty or so additional Commanders are on order at a $49,000 price plus escalator clauses providing for rising costs.

The price increase was explained as being due to rising costs of purchased materials for the airplane as well as increased labor costs and higher costs of plant operation.

It turns out that early buyers will get more airplane than they expected in the Aero Commander. This includes more performance, more range and a larger cabin.

Performance

What they're getting is a 5-6-place twin which will cruise over 190 mph. on about 26 gals. of fuel per hour at a 5,400-lb. gross weight and with a fuel-pilot-passenger-baggage allowance of 1,800 lbs. It is a "200-mph. airplane" at normal rated sea level power.

"The Aero Commander, for the first time in aviation history as we know it, is an airplane with a speed ratio of 4.5 to 1 or more," said Smith, its designer. "This is based on its power-on stall condition versus its high speed in level flight. Model 520 incorporates many advancements in aviation engineering and has performance which so far is unequalled." Short-field performance is provided by its ability to land or take off over a 50-ft. obstacle in less than 1,000 ft. Its initial rate of climb is high at 1,800 ft. per min. at sea level and gross weight, using take-off horsepower. For range, 1,150 miles is specified with standard fuel capacity of 150 gals. (145 gals. usable) at 60 per cent power and with 30-minute reserve fuel. This is based on a cruising speed

Model 520 Aero Commander

Factory Data

Powered by 2 Lycoming GO-435-C2 engines, each rated 260 hp. at 3,400 rpm. for 5 mins., and 240 hp. at 3,000 rpm. continuous operation. Gear ratio 77:120.

Span, ft.	**44**
Length, ft./ins.	**34/2.5**
Height, ft./ins.	**14/4.5**
***Empty Weight, lbs.**	**3,600**
Useful Load, lbs.	**1,800**
Gross Weight, lbs.	**5,400**
Wing Area, sq. ft.	**242.5**
Wing Loading, lbs./sq. ft.	**22.5**
Power Loading, lbs./hp.	**11.2**
Fuel Capacity, gals.	**150 (145 gals. usable)**
Baggage Capacity, lbs.	**350**
High Speed (rated power SL), mph.	**211**
Cruising Speed (70% power @ 10,000 ft.), mph.	**197**
Stall Speed (full flaps, power on), mph.	**40**
Stall Speed (flaps retracted, power on), mph.	**50**
Stall Speed (full flaps, power off), mph.	**60**
Stall Speed (flaps retracted, power off), mph.	**68**
Take-off Distance over 50-ft. obstacle, no wind, ft.	**950**
Landing Distance over 50-ft. obstacle, no wind, ft.	**900**
Rate of Climb (TO power, SL) fpm.	**1,800**
****Rate of Climb (1 engine, TO power, SL, windmilling propeller), fpm.**	**400**
Service Ceiling, ft.	**22,000**
****Service Ceiling (1 engine, windmilling prop) ft.**	**7,200**
Range (145-gal. usable fuel, 60% power and 30-min. reserve fuel), miles	**1,150**

NOTES: Speed figures guaranteed within 3%. Climb data guaranteed within 10%. All performance based on gross weight, sea level, and standard air unless otherwise noted. *Empty weight includes standard equipment listed below. **Feathering propeller now being flight tested. Sea level single-engine rate of climb with feathered propeller expected to be over 600 fpm., single-engine ceiling with feathered propeller expected to be over 10,500 ft.

STANDARD EQUIPMENT: Constant-speed, metal blade, controllable Hartzell Model 12 x 20-8C-9333 propellers of 90-in. (88-in. min.) diameter (feathering propellers when available); air speed, altimeter, rate of climb, 2 turn and bank (1 electric, 1 air driven), artificial horizon, directional gyro, clock, magnetic compass, dual tachometer, dual manifold pressure, 2 sets engine gauge units, hydraulic pressure, ammeter, fuel quantity, vacuum, flap position, gear position, Lear VHF transmitter and receiver, cabin speaker, cabin ventilating and heating system with 25,000-BTU Janitrol heater and 400-cu. ft. per min. blower, 2 individual seats forward and 3-pl., 51-in. rear seat, position lights, landing lights, map light, dome light.

Cabin visibility and size, nose landing lights and efficient engine nacelles are emphasized in this view of the Commander. Prototype of this model made 1,160-mi. nonstop flight last year, taking off and flying on one engine after one propeller had been removed.
—(FLIGHT MAGAZINE Photo.)

of 180 mph. at a fuel consumption of 23 gph.

Cabin Features

That adds up to outstanding usefulness in a private airplane. It features many new developments and introduces to the market the first small twin having a high-wing configuration which provides, among other benefits, an ease of entering or leaving the cabin comparable to that of automobiles. The cabin floor is only 19.5 ins. above the ground and the 45 by 29-in." cabin door, located at the rear of the cabin, opens at floor level. This gives it a transport-like cabin, which has been enlarged to permit the optional installation of 6 individual seats, including those for pilot and co-pilot. Cabin length measures 102 ins. from the instrument panel to the back of the rear seat. Standard seating is two individual seats up front and a rear seat 51 ins. wide.

"We feel it provides more utility than any other airplane in its category, not only in performance but because its cabin provides passengers with almost unlimited freedom of action and is almost unrestricted as to the types of seating arrangements or other incidental cabin arrangements desired by the customer," designer Smith said.

This cabin will probably become the Aero Commander's best selling point aside from performance. Visibility, for example, is greater than anything yet offered either to the pilot or his passengers. In addition to the very large windshield, there are six—count 'em in the accompanying photographs—large windows. All told, the cabin has 3,280 sq. ins. of window and windshield area. This actually exceeds that offered by many autos. For example, the new Packard car is advertised as offering exceptional visibility—with 3,046 sq. ins. of glass area, which is less than that of the Aero Commander. Occupants of the rear seat appear to ride slightly higher than the pilot and can easily see ahead in flight. Accessible from the cabin in flight, the 32-cu. ft. baggage compartment is 46 ins. wide, 30 ins. long and 41 ins. in height. Capacity is 350 lbs. The outside baggage door measures 23 by 20 ins. and is at floor level.

Low-to-the-ground forward cabin contrasts with the Aero Commander's very high tail in these two photos. Tip of vertical fin is 14 ft. 4.5 ins. off the ground.
—(FLIGHT MAGAZINE Photos.)

A complete cabin air ventilating and heating system, with ducts carrying fresh or warm air to multiple outlets, is provided. It incorporates a 400-cu. ft. per min. blower for use on the ground. The heater is a 25,000-BTU Janitrol combustion unit, installed behind the baggage compartment. Cabin blower is automatically switched off when the landing gear is retracted, after which ram air is utilized.

Up front, the cockpit is airline-like with its individual seats, which are adjustable; dual control columns which are brought up from the floor alongside the fuselage wall; dual brakes (power type); compact and well-designed console for engine, propeller, flaps, gear and trim tab controls; extra wide instrument panel with convenient grouping of flight instruments on the left and engine instruments on the right, and overhead electrical panel carrying all switches thoughtfully arranged as in many custom panels found in executive transports.

A unique feature is the provision of electrical controls on the console for elevator and rudder trim tabs. The toggle switch for elevator trim op-

erates up and down, that for the rudder from side to side. Full tab deflection from one extreme to the other is accomplished in only about 15 seconds. In addition to the toggle switches, there is a rheostat control which may be used either to speed up or slow down the tab action as desired. Gear and flap controls are also on the console and are not only widely separated but are identified by shape and feel, that for the gear being a wheel-shaped knob and that for flap control being an airfoil-shaped knob. Flaps and gear are hydraulically operated, with 4-second gear retraction.

Exhaust Augmentor System

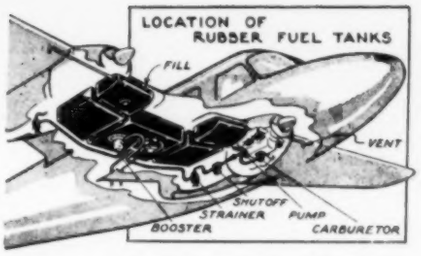
A valuable and interesting power plant feature is the use of exhaust augmentor tubes such as were pioneered on the Convair 240 airliner. Those on the Aero Commander, however, are the first to be installed exactly parallel with the thrust line and they are longer, in relation to power plant size, than those used on other aircraft. The high-wing configuration made such an installation possible, since low-wing installations apparently prevent parallel thrust-line positioning and limit the length of the tubes.

Primary purpose of the augmentor exhaust system is to reduce engine cooling drag, simplify engine cooling, and obtain efficient air and exhaust pumping with their engine benefits. In the Aero Commander, it is said that the augmentor exhaust system has reduced engine cooling drag by approximately 50 per cent. "We are able to satisfactorily cool the engine with only about 60 sq. ins. of exhaust air area, compared to almost twice this area with the normal cooling system," factory engineers said.

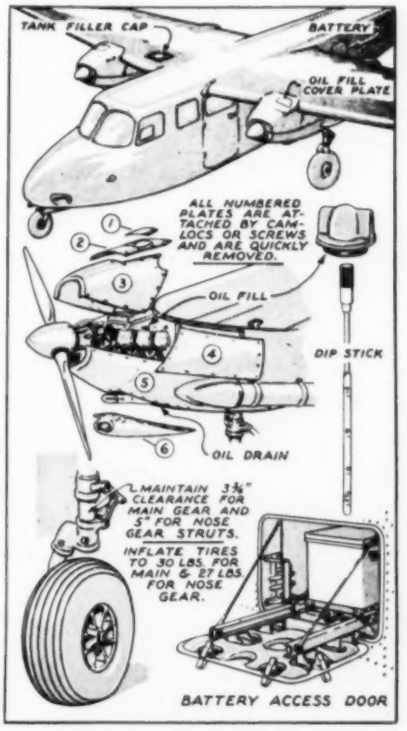
There are other augmentor exhaust advantages and benefits. Whether additional thrust is provided can be debated, and the factory says it cannot justify any elaborate claims for this effect. However, according to General Manager Smith, "It is true that there is a small reduction in exhaust backpressures and this automatically means there should be a slight power increase. There is a specific advantage in that the tubes extend aft of the cabin, the exhaust gas and noise outlet being about 4 ft. rearward of the cabin door. A safety advantage is provided in that in case of engine compartment fire the flame will terminate in the exhaust augmentor tube, thereby offering protection to accessories and other components."

Tricycle landing gear on the Aero Commander reflects ingenuity in utilization of service-proved types. The main gear was adapted from that service-proved on thousands of Consolidated Vultee BT-13 trainers, being modified for hydraulic retraction. The nose gear was adapted from the Navion, having been proved in service by both North American Aviation and Ryan models of that airplane. Wheels on the main gear are 7.50 by 10 with 8.50 by 10 six-ply tires and Goodyear single-disc, 2-spot brakes. Nose wheel size is 6.00 by 6. Steering on the ground is by throttle and brakes. It

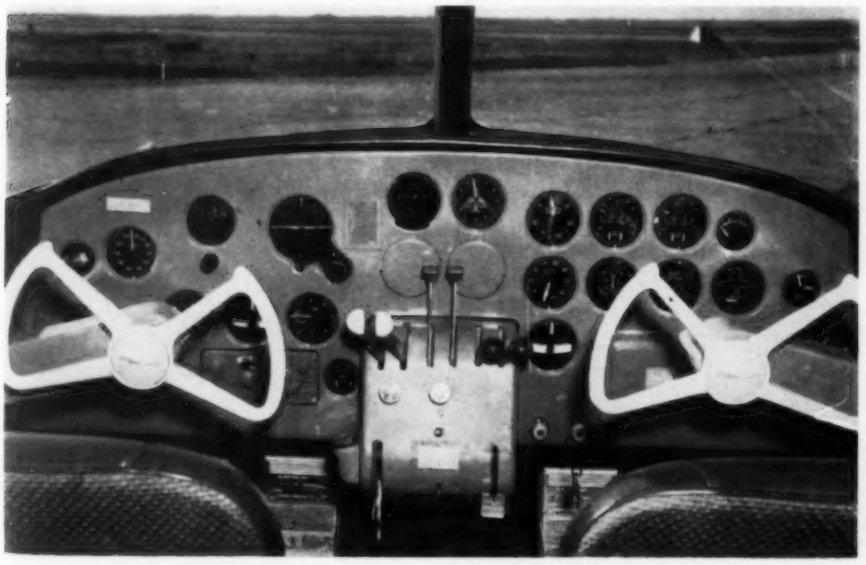
(Continued on page 32)



Fuel tanks located in center wing section feed into center tank, largest of five. Separate lines from it feed engines. Tank units have large, 1.5-in. interconnect lines. Capacity is 150 gals., of which 145 gals. is usable.


TANK FILLER CAP
BATTERY
OIL FILL COVER PLATE
ALL NUMBERED PLATES ARE ATTACHED BY CAM-LOCS OR SCREWS AND ARE QUICKLY REMOVED.
OIL FILL
DIP STICK
OIL DRAIN
MAINTAIN 3 3/8" CLEARANCE FOR MAIN GEAR AND 5" FOR NOSE GEAR STRUTS.
INFLATE TIRES TO 30 LBS. FOR MAIN & 27 LBS. FOR NOSE GEAR.
BATTERY ACCESS DOOR

Sketch details show interesting features of Aero Commander. Note how exhaust augmentor tubes are faired in. Cooling air enters top half of nacelle around spinner, is baffled down and rearward into tubes. Baggage compartment (below) is behind rear seat, has large outside door close to ground, and is accessible in flight.



Instrument panel in Aero Commander groups flight instruments on left, engine instruments on right. Console at center has throttles at left, propeller controls in center and mixture controls at right. Toggle switches are for electrical control of trim tab settings, indicated by panel instrument adjacent to console on left. All electrical switches are efficiently arranged on overhead panel. Note transport-type control columns, space between adjustable seats, visibility over nose.
—(FLIGHT MAGAZINE Photo.)

Homer for Students

Radio odds and ends make an inexpensive direction finder that works

CONSTANTLY on the alert for new ideas to help prevent accidents, the Hawthorne School of Aeronautics at Spence Field, Moultrie, Ga., has installed its own direction finder—produced by maintenance personnel at a fraction of the cost of a commercially-manufactured VHF/DF homer.

Development of the equipment was the outgrowth of a recent safety conference attended by representatives of civilian concerns like Hawthorne which are presently operating Air Force contract basic flying schools. That meeting brought out the urgent need for direction finding gear which would assist in locating lost students before they got themselves into trouble.

Tower operation of home-made VHF homer is shown at left, with Radio Maintenance Man Joe Crecente in sweater and Flying Safety Supervisor Sam Phillips. Black box by Phillips' hand rotates antenna until voltmeter at right shows strongest signal from lost plane. Antenna shaft (center) turns large direction indicator on table, giving plane's bearing.
—(Hawthorne School of Aeronautics Photo.)

Home-Made and Inexpensive

The first home-made homer was installed at the basic school at Columbus, Miss., but Hawthorne's unit is somewhat different in design and construction. Not only that, budget-wise as well as safety conscious, Hawthorne came up with what is probably the most inexpensive yet workable homer ever conceived.

Using a spare VHF receiver and transmitter (SCR-522), plus an old T-6 antenna post, the boys in the machine shop rounded up enough scrap material to build a cage and framework for the homer antenna, which was then mounted atop the control tower. The transmitting and receiving equipment was placed underneath, inside the control tower, to utilize radio equipment already installed.

A manually-controlled television rotator powered by an electric motor, rotates the DF antenna, which is coupled with the indicator by means of a tubular steel rod extending downward to the control table and anchored in the center of an old radio compass dial.

That's where Hawthorne's homer differs from the one at Columbus, which is operated by remote control. According to Samuel M. Phillips, Hawthorne's flying safety supervisor, direct control eliminates any possible margin for error when establishing a fix because the homer antenna and indicator are linked together by a

Cage-looking contraption is rotating antenna. It selects direction of strongest radio signal from lost plane. Heading to airport is radioed to pilot after homer indicates correct bearing. That's Radioman Joe Crecente on the lofty perch—he was responsible for rigging up the home-made direction finder at next-to-nothing expense. (Hawthorne School of Aeronautics Photo.)

single shaft, providing absolute synchronization.

A head set with boom microphone is employed and a switch to cut out the automatic volume control on "D" channel receiver is attached to the control panel. The decibel meter for measuring signal strength is a vacuum tube voltmeter, situated on the panel adjacent to the indicator needle.

How To Find Lost Pilots

The indicator, incidentally, points to the reciprocal of the antenna bearing to avoid any possible confusion in giving the lost pilot the proper heading to his home station. Here's the procedure used to work the Hawthorne homer:

Lost Pilot (on student frequency): "Flatbush, this is 404, over."

Flatbush (student control): "404, this is Flatbush, over."

Lost Pilot: "Flatbush, this is 404. I am lost and request heading for Spence Field, over."

Flatbush: "Roger, 404. Switch to Dog channel and give us a call."

Lost Pilot (on "D" channel): "Spence Homer, this is 404 calling on D-Dog channel. Do you read? Over."

Spence Homer: "404, this is Spence Homer on D-Dog channel, roger, we read you R5 S5."

Lost Pilot: "Spence Homer, this is 404. Request a heading to Spence Field, over."

Spence Homer: "404, this is Spence Homer. Hold down your carrier (tone button or microphone switch) for one minute. Over."

Lost Pilot: "Spence Homer, this is 404, roger. Holding down carrier for one minute."

(While the carrier is on the air the homer antenna is rotated 360 degrees. At the point where the maximum signal strength is read on the decibel meter, the operator then reads off the heading necessary to bring the stray aircraft back to Spence Field.)

Spence Homer: "404, this is Spence Homer. Take up a heading of 160 degrees and give us another call in three minutes, over."

Lost Pilot: "Spence Homer, this is 404. Roger, take up heading of 160 degrees and call again in three minutes. 404 out."

Good for 100-150 Miles Out

When the homer was installed, a pilot attached to the 3302nd Training Squadron, the military supervisory detachment at Hawthorne, ran a check on the device during a cross-country flight to Bartow, Fla.

The officer called in for headings every 15 minutes and after his heading was established he gave his mileage from Spence Field. The most distant contact with this pilot was made when he was over Cross City, Fla., 110 air miles from the homer, by VHF radio at an altitude of 4,500 feet.

Joe Crecente, of Hawthorne's radio maintenance shop, who supervised the building of the equipment, stated that the homer is workable within a radius of 150 miles or more when the aircraft is flying at altitudes of over 8,000 feet.

Hawthorne's hard-hitting flying safety program, stimulated by the ingenuity of maintenance and operational personnel, is paying handsome dividends. In operation since May, 1951, the school has one of the lowest accident rates in the Flying Training Air Force.

To date three classes of aviation cadets, student officers, and Allied trainees (taking training under the Mutual Defense Assistance Program) have graduated from Hawthorne and gone to advanced phases of their pilot training.

School officials are confident of one thing. If any graduate has the misfortune to meet with an accident, chances are it won't be because of pilot error. Safety is the most important subject around Spence Field.

★ ★ ★

Tucson's Transient Aircraft Survey

This airport knows how much business comes from where and how to go after more of it

By R. W. F. (Bob) SCHMIDT
Manager, Tucson Airport Authority

THE behavior pattern established in the initial period of Tucson's transient aircraft survey beginning May 1, 1949, and ending December 31, 1950, as published last year in FLIGHT MAGAZINE, was confirmed in studies continued during calender 1951. Since the inception of the survey, questionnaire cards have been executed by someone aboard each of 638 aircraft, usually the pilot and/or owner, from 43 states, Alaska, Canada, the District of Columbia, Mexico and South America, representing 343 different homes. During the thirty-two months ending December 31, 1951, there were 34,301 transient civil aircraft movements or 17,150 aircraft available for study, so that sampling ran 3.72% of the potential. These 638 aircraft were headed for 215 different destinations in 35 states, Canada, Cuba, Mexico and South America, and 87% of them were going to an out-of-state goal.

The cards registered 106 different "last stop before Tucson" points. Of these places at which landings were made before touching down at Tucson Municipal Airport, 69% were at out-of-Arizona airports. El Paso continued to pace the other states with 165 entries while San Diego again ran second with 37, Blythe, California, chalked up 30, Los Angeles hit 22, and Lordsburg, New Mexico, had 12. Phoenix led the Arizona statistics with 102, tagged by Yuma at 37, Nogales 11 and Douglas 8.

The 638 reporting gave 94 different "next stop after Tucson" points of call en route to the ultimate goal which, of course, in some cases was also the destinations or homes. Four hundred and thirteen or 65% named airports beyond Arizona's borders as the next stop to be made after clearing the runways at Tucson Municipal Airport. El Paso once again led the out-of-state points as the stated "next stop" with 163, trailed by Blythe, California, on the Colorado River at 38, Los Angeles with 23, San Diego 17, Palm Springs 12, Albuquerque 11, and El Centro 9. Phoenix marked up 102, Yuma had 55, Nogales hit 30, Douglas 7, Gila Bend 5 and Ajo and Bisbee 3 each in the Arizona column.

One thousand, six hundred and sixty-eight persons were listed as having ridden in the 638 aircraft reporting. Since all of these did not provide any information as to the number of persons aboard, the number of multi-engined executive type aircraft using Tucson Municipal Airport has been stepped up, and near-capacity loads were observed in a substantial number of such aircraft from which no survey card was obtained, the apparent average of 2.61 persons per aircraft may safely be presumed to be low. The average thus obtained, however, totes up to 44,761 persons over a thirty-two month span, a conservative 1,399 persons per month, or just short of 50 persons per day. Spot counting supports the figures thus developed.

Two hundred and eighty-eight of the survey cards carried comment on hospitality, rates, and services available. Of these, 94 said "excellent," 76 reported "very good," 88 saw the operation as "good," 23 thought it was "satisfactory" and 7 found something "unfavorable"—only one of the latter being expressed in 1951, the last twelve months under study.

Whereas the first segment of the survey saw Cessna users pacing the field with 23%, the composite view found Cessna losing ground slightly and Beechcraft gaining appreciably to stand off at 21% each. Navion, though out of production, held its own at 16%, while Piper and Stinson ran neck and neck at 7%. Swift users increased substantially to tally 4%, a status also enjoyed by Ercoupe, while Luscombe faded from 5% to 3%. Douglas and Lockheed models again accounted for 3%, and the rest were widely scattered from Aeronca to Waco.

Local Expenditures by Transients

Five hundred and twenty-seven of the 638 cards bore notations as to expenditures of one kind or another which were made at Tucson Municipal Airport or somewhere in the metropolitan Tucson area by persons aboard the aircraft reporting. The money left by the visitors was divided as cited by them:

Aircraft Service:
491 or 77% averaged $ 15.62
Transportation:
180 or 28% averaged $ 11.35
Lodging:
199 or 31% averaged $ 16.97
Meals:
302 or 47% averaged $ 9.94
Entertainment:
81 or 13% averaged $ 14.41
Merchandise:
107 or 17% averaged $ 23.64
Medical Service:
9 or 1% averaged $147.89

Applying the above dollar averages to the same relative percentages of the total number of transient aircraft using Tucson Municipal Airport, it becomes entirely reasonable to state that such aircraft were responsible for dropping approximately $566,500 in the Old Pueblo in the thirty-two months ending December 31, 1951, at the rate of $17,700 per month. Comparisons of the cumulative statistics over the first twenty months with the entire span of thirty-two months reflect the general rise in the costs of living and travel. Expenditures for meals during 1949-1950 averaged $9.04 per aircraft, but at the end of 1951 they were running $9.94, and entertainment costs rose from $13.61 to $14.41. Similarly, money spent for aircraft services, transportation, and lodging increased, although expenditures for merchandise declined from $25.02 to $23.64 and the costs of medical service to visitors using transient aircraft as reported by them dropped substantially.

While the airport itself took a healthy bite out of the $566,500 by claiming $206,000 for aircraft services, $54,500 went for local transportation (Tucson Airport Authority it-

(Continued on age 30)

External changes in Piper Pacers are spherical windshield, double stripe on rudder and 12-in. wider tread for regular Pacer. —(Piper Photo.)

Improved Pacers for 1952

IMPROVEMENTS have been made for 1952 in Piper Aircraft Corporation's 4-place Model PA-20 Pacer and Model PA-22 Tri-Pacer, both available in "125" and "135" series. Performance at 75% power includes "over 120 mph." for the Tri-Pacer, "over 125 mph." for the regular Pacer with metal propeller, and "approaching 135 mph." for the Pacer with controllable propeller, says Sales Manager J. W. Miller. All are powered by the Lycoming 0-290-D engine rated at 125 hp. at 2,600 rpm. and all gross 1,800 lbs., with the PA-20's empty weight at 970 lbs. for the "125" and 990 lbs. for the "135," while the Tri-Pacer's empty weight is 1,000 lbs. for the "125" and 1,020 lbs. for the "135."

Refinements and changes include new instrument panel design to accommodate gyros and radios, the use of a rounded windshield with more strength from its spherical shape; new double striping on the rudder for paint-job distinction; 12 inches of additional tread to give the regular Pacer softer shock absorbing and better take-off and landing directional stability; doubled heater capacity and an air scoop for cabin ventilation; more effective soundproofing through increased Fibreglas blanketing; and lighter controls, especially in the ailerons. ★ ★ ★

Tri-Pacer has lighter controls, with spring interconnection of aileron and rudder controls. Springs permit over-riding if desired. —(Piper Photo.)

The Reawakening

Business is picking up all along the fixed-base operations line.

Rugged individualists all, operators are finding strength in unity.

By GEORGE E. HADDAWAY

THERE'S a quiet revolution going on in the fixed-base operations phase of our civil aviation industry and it's all for the good. That's the principal impression gained from more than 6,000 miles of air travel in recent weeks throughout the length and breadth of the land, from the Mexican border to the Canadian border, from Boston to Los Angeles.

A great many people think that just because the small businessmen of aviation went through a mighty serious postwar wring-out which materially reduced their ranks, it's far from a healthy enterprise. They are one hundred per cent wrong. The wring-out simply separated the men from the boys and those who remain are stronger than ever before. The top water minnows who couldn't weather the many postwar storms due to inexperience, lack of capital, bad location, the rug-pulling of manufacturers quitting the business or other similar causes have migrated to what we hope are greener pastures for them. As a result of their departure the aviation pasture is now reasonably populated with plenty of grass to go around.

This is not to say that all is milk and honey in the fixed-base operations business. It still hasn't quite recovered from the crisis year of 1951 when materials were cut off and production lagged awaiting Washington brass' decision either to provide those materials or sign the death warrant for free enterprise, non-subsidized, competitive commercial aviation. But that's all history now. We have a firm program for materials and no more major crises are in sight, barring an all-out shooting war. Hard nuts to crack right now involve finding competent employes, especially mechanics; getting enough new airplanes on convenient delivery schedules; military appropriation of large municipal airports; the constant threat of new taxes and license fees plus all the other headaches every small American business man has to face every day.

Better Airplanes for Better Business

The really impressive part of the fixed-base operations industry is the large number of highly profitable organizations operating well in the black and continuing to expand by investing large hunks of capital. In the main these companies are sales and service operations catering to the constantly growing fleet of executive aircraft used in essential industry, agriculture and business. This type of patronage has, more than any other one factor, contributed to the maturing process of airport service operations, hundreds of which today rank right alongside every other highly respected, successful and brilliantly managed enterprise down on Main Street. Increased aircraft utility and the kind of patronage it brings provide the keystone of the revolution taking place.

Now that the critical materials situation has been clarified and a moderate flow of commercial airplanes is more or less guaranteed, fixed-base operators are more secure than a year ago, when it was mighty risky to invest ten grand in T hangars or a hundred grand in a big one. Operators everywhere feel that the last rug has been pulled from under their feet and that present manufacturers of civil aircraft and components intend to remain in the business of supplying the demand. They anxiously await the new and improved models, especially the Twin-Bonanza, the Twin Piper-Stinson, the Aero Commander and the new Cessna line. Even operators not in the business of selling those particular airplanes recognize the significance of their production and the beneficial effect on the entire industry. Just as 1951 was a year of crisis during the mobilization work, so was it a year of jitters, which have now fairly well vanished. Confidence has replaced uncertainty.

MINNESOTA FLIGHT OPERATORS elected Malcolm Manual (left) of Stanton as president of their association succeeding Glenn Degner of Owatonna. Meeting was in St. Paul last month.
—(Photos by Sig Gudmundson of Van Dusen Aircraft.)

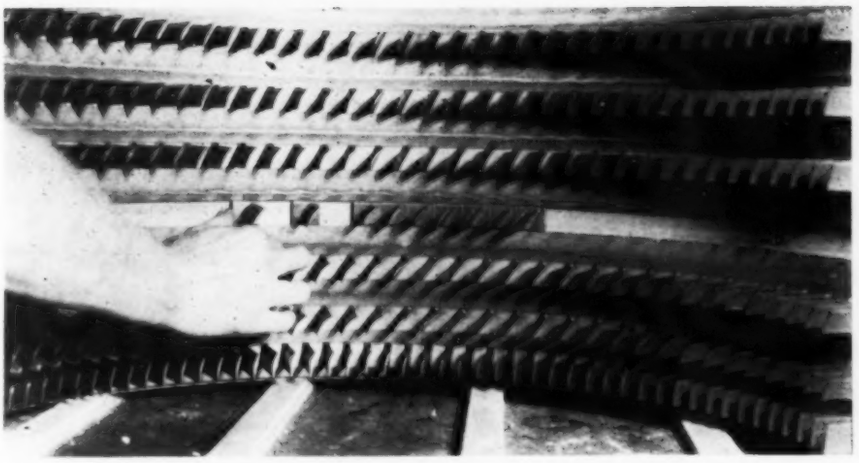
More Sales Effort for Profits

One attribute distinguishing the airport operator of 1952 from his 1940 counterpart is his increased sales effort. Those now operating profitably aren't waiting for the world to beat a path to their doors. It used to be that sheer survival was their goal. Today, it's profits, with high class operating techniques far removed from the "tobacco road" days.

Speaking of techniques, have you ever taken or given orders via radio? En route in a Cessna 170 from Des Moines to St. Paul last month with G. B. Van Duesen and his area sales manager, Sig Gudmundson, we turned on the Narco unicom and called Owatonna, home field of Glenn Degner, retiring president of the Minnesota Operators, who was expecting both Van and us to appear on his convention program. After our ETA message was transmitted for re-transmission by

(Continued on page 29)

flight pictorial



JET ENGINE BOTTLENECK is being cracked by a new General Electric method of fabricating stator blades instead of forging them. Formerly hammered into airfoil shape, these stainless steel blades are now rolled in a continuous strip, simply cut to desired lengths and then inserted into place in compressor casing slots. Great savings in materials, labor and costs are promised.
—(General Electric Photo.)

NEW CONVAIR 340 POWER PACK has "orange-peel" cowling which opens in seconds for easy access to 2,400-hp. Pratt & Whitney CB-16 engines. Note exhaust augmentor tube intake. This is on first of 40 new Convairs going to United Air Lines.
—(United Air Lines Photo.)

DOLLY PARKING ON CARGO RAMP is done by a new Whiting Loadair device at Avianca's Soledad Airport in Colombia. Loadair consists of 3 "cars" almost flush with pavement. Plane is taxied onto them. They travel on rails from taxi strip to ramp dock, moving aircraft sideways.
—(Whiting Loadair Photos.)

STEEP SLANT FOR SUPER CONNIE was photographed as Lockheed Test Pilot Stanley Beltz demonstrated sharp climb at factory. For normal take-off at 120,000-lb. gross, Super Constellation with 10,800 hp. gets off after 3,400-ft. run.
—(Lockheed Photo.)

Flat-Rate Service

you can depend on!

YOU don't have to put up with guesswork and trial-and-error methods when your Cessna needs maintenance or repairs. You can obtain accurate, dependable flat-rate service from the Authorized Cessna Service Stations listed below.

Years of know-how have gone into the analysis of hundreds of service items to make progressive maintenance methods available from these Authorized Cessna Service Operators. Factory coordination on a national scale has made these job-rating methods practical; this system has become a Cessna standard. With it you get facts and accurate figures before the job begins, whatever your Cessna maintenance and service need may be. Because guesswork has been eliminated, your Authorized Cessna Service Operator stands behind every job analysis he offers—your assurance that know-how and efficiency are at work for you.

These progressive Cessna Authorized Service Shops offer flat-rate service.

Aircraft Sales Company
Meacham Field
Fort Worth, Texas

Champ's Flying Service
Municipal Airport
El Paso, Texas

Clinch Flying Service
Municipal Airport
North Platte, Nebraska

Clinton Aviation Company
Stapleton Airfield
Denver, Colorado

Cruse Aviation, Inc.
Municipal Airport
Houston—Texas—San Benito

Hair Flying Service
Harding Field
Baton Rouge, Louisiana

Ragsdale Flying Service
Municipal Airport
Austin, Texas

Southwestern Skyways, Inc.
Ragle Airpark
Santa Fe, New Mexico

Kenneth Starnes Aviation Service
Adams Field; Little Rock, Arkansas

West Texas Flying Service
Midland Airpark
Midland, Texas

Yingling Aircraft, Inc.
Municipal Airport
Wichita, Kansas

Isn't this What YOU Want?

High Wing stability and visibility... *Smooth, service-proved* 145 H.P., 6-cylinder Continental Engine for fast cruising... maximum range... Patented Landing Gear for short, rough-field landings... Finger-tip controls... Luxurious interiors. You'll find them all in the 1952 Cessna 170—at a price several thousand dollars under any other 4-place, all-metal plane made!

The New Cessna 170

WITH NEW SUPER-LIFT FLAPS

proved in combat on the famous Cessna L-19 "Bird Dog" Army observation plane... NOW, available to you on the 1952 Cessna 170! These flaps reduce landing speed more than 10%. Combined with the Cessna patented landing gear, they give you shorter take-offs, safe landings even on short, rough fields... *exclusive* with Cessna!

CESSNA CASE HISTORIES

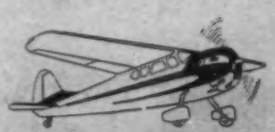
CONTRACTOR

DAIL CONAWAY, Denver, Colo., owns an air heating and sheet metal business, reports he can bid on *and get* jobs 500 miles away by flying there in his Cessna 170. He flies his mechanics, too—saves wages he'd ordinarily have to pay them for traveling. Other uses of Conaway's 170: visit his Casper, Wyo. office, his family in Kansas, suppliers in Iowa. Conaway says Cessna's all-metal construction is "good insurance against hailstorms," also praises his 170's high-altitude performance, visibility, economy.

LOAN AGENT

A. BRADY DE VORE, North Platte, Nebr., a small loan and insurance salesman, co-owns his Cessna 170 with a friend in the Title Abstract business. De Vore is a director in the Nebraska Small Loan Assn., flies to meetings in Norfolk, Grand Island and Omaha. Says he also uses his plane to appraise property, scout prospective clients, negotiate and manage small loans as far away as Denver. De Vore learned to fly his Cessna in 13 hours, says the plane is one "we definitely could afford and find completely satisfactory in all respects." It is the second Cessna for him and his partner.

ALSO SEE THE CESSNA 190 SERIES



Seats 5 with comfort, cruises at fast, airline speeds, carries up to 200 lbs. luggage, has all the safety and comfort features that make the Cessna America's best "big-plane" value on the market today.

FOR MORE INFORMATION... phone your nearest Cessna dealer or mail this coupon to Cessna Aircraft Company today...

Cessna Aircraft Co., Dept. FM-3
Wichita, Kansas

Please send information on the Cessna 170 ..... the 190 ..... I am interested in a Cessna for business ..... for farming ..... other .....

Name.....

Address.....

City.....County.....State.....

SHARK'S MOUTH appearance of this Boeing B-47 Stratojet is given by black-patch protective covering on the radar fairing beneath the nose.
—(Boeing Photo.)

FLYING TIGER LINE'S new office building at Burburbank was dedicated recently by Mrs. Robert W. Prescott, wife of its president. Radio Star Wendell Niles was master of ceremonies and Burbank Mayor Ralph Hilton participated.
—(Flying Tiger Line Photo.)

flight pictorial

LATEST GRUMMAN FIGHTER FOR NAVY is this swept-wing F9F-6 Cougar, successor to the Panther. Much faster than its 600-mph. predecessor, Cougar has same low landing and take-off speeds. Grumman began rolling F9F-6's from its assembly lines less than 5 months after prototype's first flight.
—(Grumman Photo.)

THREE AIRPLANES FOR ONE RANCH were picked up at the Piper factory recently by representatives of the Amberson Ranch at Cotulla, Texas. Left to right are Jesse Young, ranch foreman; Mr. and Mrs. W. L. Reeves, son-in-law and daughter of Ranch Owner Joseph Amberson (right). They already have one Piper. The Super Cub will be used for dusting and spraying, the two Pacers for general ranch activities including cattle and fence checking, visiting oil drilling rigs on the ranch, and to carry loudspeakers to aid cowboys on the ground at round-up time. —(Piper Photo.)

AIR REPORT

(Continued from page 7)

Department of Commerce and congressmen.

CAA OFFICE OF AVIATION SAFETY has made wholesale changes and transfers in reorganization. New line-up has following regional aviation safety division chiefs: 1—E. C. Marsh; 2—J. Leslie; 3—J. T. Shumate; 4—M. L. Cunningham; 5—R. W. Delaney; 6—W. A. Klikoff; 7—D. R. Nelson. (See editorial, "How to Wreck An Organization," page 9.)

CESSNA'S NEW SALES DRIVE is paying off early. Before the end of February, over 400 orders with deposits had been obtained for the new 4-place Model 170B with high-lift flap—almost as many 170's as were sold throughout 1951. . . . **NEW 300-HP. JACOBS R755A-2 ENGINE** is going into Cessna 195. Airplane with this engine is priced at $21,750.

TEXAS OPERATORS UNITED to organize Texas Aviation Trades Association last month with plans to affiliate with the National Aviation Trades Association. John Brownlee, Alamo Aviation, San Antonio, was elected temporary president; Robert Ragsdale of Austin and J. O. Womack of Dallas were named vice presidents, and Lloyd Brown, San Antonio, was elected secretary-treasurer. First official meeting will be held May 28-29 at San Angelo, where permanent officers will be named. Limited strictly to fixed-base operators of Texas, the organization welcomes requests for membership applications, now available from temporary headquarters in care of John Brownlee, P. O. Box 2657, San Antonio.

NEW CESSNA DISTRIBUTOR FOR OKLAHOMA is Gleason Romans' Aviation, Inc., 15th Street Air Park, Tulsa, with Harold Davis as sales manager and R. E. (Dutch) Dutton, with the Cessna factory 11 years, as sales representative. . . . **NEW CESSNA DEALER FOR DALLAS** is Dal-Tex Aviation, Inc., Highland Park Airport, with H. O. and T. O. Wright as operators and O. B. Callan, long-time aviation salesman, as sales representative. Dal-Tex also specializes in radio installations and service.

POLITICAL FUMBLING OF U. S. AIR POWER has resulted in aircraft production cutbacks which mean goal of adequate air preparedness strength will not be reached in 1953 as scheduled. New goal is 1955-56; cutbacks are called "stretch-out" by Washington. ★ ★ ★

10-YR. OLD BETTY LEE BENNETT became the world's youngest solo pilot recently when her father, Taylorcraft Vice President Al Bennett, soloed her in Cuba. He soloed his son last year in Mexico at age 11. —(Taylorcraft Photo.)

SKI OPERATIONS IN SNOW AND ICE have been tested by the Air Force with three Ryan Super Navions operating from a Canadian base. The Super Navion 260 is a commercial model of a later type than the military L-17B version. Similar tests last year showed the nose ski could be readily lifted out of the snow for positive angle of attack in taking off. —(USAF Photo.)

Leadership demands constant achievement

9 OUT OF 10 JET FIGHTER PILOTS TRAIN IN LOCKHEED JETS

3 U. S. MILITARY SERVICES AND 9 OTHER NATIONS CHOOSE THIS RELIABLE JET TRAINER

U. S. JET PILOTS have an outstanding superiority in skill that comes from rigorous, thorough training.

In nearly every instance America's flying sons make their first jet flights and attain their skill in a Lockheed jet—selected as the standard fighter-trainer by the U. S. Air Force, Navy and Marine Corps. Allied pilots, too, are taught in these jet trainers—pilots from Holland, France, Denmark, Norway, Belgium, Greece, Turkey, Portugal, Canada.

Lockheed developed this two-place jet trainer from America's first jet fighter, the battle-tested Lockheed F-80 *Shooting Star*, proven for reliability in Korea.

America can be proud of the high standards of U. S. training, and Lockheed is proud of contributing the airplanes used to train the world's finest jet pilots.

SUPERIOR TRAINING FOR ENGINEERS TOO

In developing great aircraft Lockheed develops fine engineers. For information about Lockheed's unique on-the-job training program, write to: Engineering Dept., Lockheed Aircraft Corp., Burbank, Calif.

LOCKHEED

AIRCRAFT CORPORATION, BURBANK, CALIFORNIA, AND MARIETTA, GEORGIA

Look to Lockheed for Leadership

LOCKHEED

SUPER CONSTELLATIONS TO GET TURBO-PROPS

The U.S. Navy has selected the new R7O-1 Super Constellation as ideally designed for vital conversion to turbo-prop power. Only minimum modifications are required, according to BuAer. No structural changes of the empennage, fuselage or basic wing are necessary.

Significance to airline operators is that Super Constellations with Wright 3250-h.p. compound engines can later be converted to turbo-props. This conversion to Pratt & Whitney T-34 Turbo Wasp engines will put the Super Constellation in the 450-mile-per-hour-class.

The Super Constellation offers any airline operator any performance he desires, from high-density coach travel, to luxury over-ocean travel, or it can be used for efficient, economical cargo purposes.

Never before has the basic structure of any aircraft provided so adequately for *growth*, assuring the operator many years of competitive performance. Compared with any of today's certificated aircraft the new Super Constellation is superior in versatility, speed, payload, range and ability to earn greater profit.

NEWS NOTES FROM LOCKHEED

Eight international airlines have now ordered Super Constellations—most recent: Seaboard & Western Airlines and Braathens S.A.F.E. Air Transport ... With Navy and Air Force orders, the total demand now exceeds 200.... A new "White House Squadron" of Lockheed F-94 All Weather Jet Fighters is guarding Washington, D.C. ... Lockheed is occupied with aircraft using six different kinds of power, including reciprocating engines, turbo-props, jets and rocket power.... For pilot comfort every Lockheed jet fighter has a cockpit cooling system equivalent to 100 household refrigerators.... The single Allison jet engine in the Lockheed T-33 jet trainer is more powerful than all four engines of the B-17 bomber of World War II fame.... Pilots of many nations learn jet flying in Lockheed T-33 trainers, and recently when two T-33's were delivered to Turkey they were inaugurated in preflight Mohammedan rites including a lamb sacrifice.

FROM THE WORLD PRESS

Under the headline, "New Facts on Jet Combat," *Aviation Week* reports from Tokyo: "The Lockheed F-80 *(Shooting Star)* still is considered to be the best ground-attack jet in Korea. There is considerable belief here that development of an airplane along the proved lines of the F-80 is the answer to the interdiction-close support requirement." Thus another Lockheed design continues to prove its basic "rightness" even though more modern types have replaced it in Lockheed's production line.

THE REAWAKENING

(Continued from page 22)

phone to Glenn up in St. Paul, the ground unicom called us back and said, "Van, I'd like to place an order for thirty gallons of thinner and some other stuff." So Sig pulled out his order blank and started writing. The new party line unicom frequency is truly helping to revolutionize little aviation, just like all the other improved products and technical developments which increase the utilization of civil aircraft.

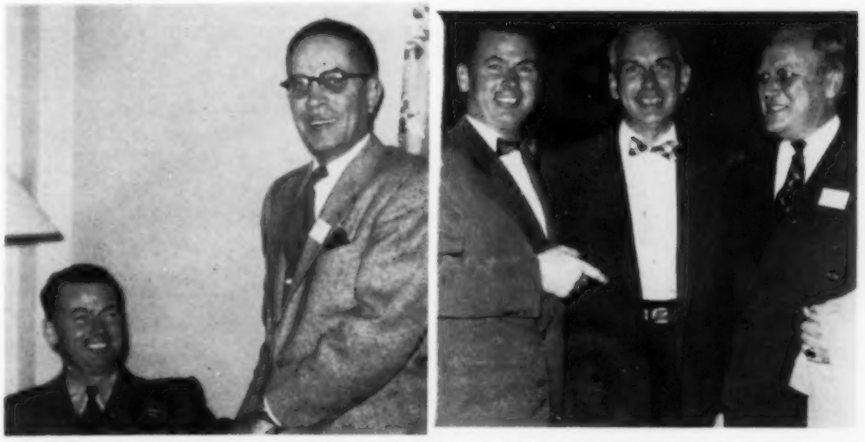
Throughout the inter-mountain area we found most of the operators now serving as insurance agents. According to Lloyd Van Camp of National Insurance Underwriters, St. Louis, nearly 1,000 operators have set up NIU's inspection stations and are writing their own insurance. Dave Kratz, himself a veteran fixed-base operator, established this unique plan some six years ago.

Flight training is still a major factor within the ranks of the smaller operators in the larger cities and practically all of the operators in the small and medium size communities. Consequently all the talk about the possibilities of a new civil airmen training act being passed in this session of Congress is creating lots of interest. One of the most encouranging discoveries was the complete dissatisfaction with GI training and the universal attitude that if another training program does come, it should be for national defense reasons entirely. We failed to find one operator who thought that his or anyone else's operation should be subsidized. A large number of operators who want to see the act passed won't even seek a contract if available.

Last month at the Minnesota Aviation Trades Association annual meeting in St. Paul we heard State Senator Leo J. Lauerman put his finger on the proposition when he told the group that a recent visit to a large military camp proved to him we all must press for the passage of the Civil Airmen Training Act. "The young men in training," he remarked, "see large sums of money being spent without accomplishing anything and they are a long way from home. It seems that some of this training should be accomplished on our own civil airports where boys can learn basic training and still be at home. It would save millions of dollars and turn out a better product."

Senator Lauerman is typical of a growing force among non-aviation people all over the country ready to assist in pushing the bill through if the aviation industry will show the way. Perhaps no one individual has worked more earnestly or steadfastly for a realistic training program than John T. Griffin, immediate past president of NATA, whose "Training Manifesto" was published in the January and February editions of this magazine. Largely through his efforts the flight operators of the nation now recognize that military pilot and mechanic procurement must be tied in with our going-concern civilian schools and unless something is done quickly the facilities just won't be there if and when the day of reckoning arrives in the Pentagon.

Results of Griffin's tireless efforts are visible everywhere you go in the re-awakening that's taking place within the ranks of operators who are joining their state associations and helping to strengthen NATA nationally. We saw it last month when we broke bread with the Iowa Flight



SEEN AT MINNESOTA AVIATION TRADES ASSOCIATION MEETING last month were (left to right) Jim Wathan, partner and manager of Hunter Flying Service at Cedar Rapids, Iowa, and Joseph F. Read, chief of airman standards branch, CAA 3rd Region at Chicago, who had not met since Joe gave Jim his solo ticket in 1938; and Wathan, Supply Man G. B. Van Dusen and Cessna Distributor Jack Lysdale.
—(Photos by Sig Gudmundson of Van Dusen Aircraft.)

Operators Association at Des Moines, the Minnesota Aviation Trades Association and with a small group of Texas operators who have formed the Texas Aviation Trades Association for NATA affiliation. According to NATA executive secretary Charles Parker, Kansas is rebuilding its state organization and other recalcitrant states, including Georgia and Tennessee, plan to start up again.

At the California Aviation Trades Association meeting in December we found the same process of beefing up the state group in order to strengthen the national organization. This is mighty providential; far too many operators have been dragging their feet, leaving the burden of cost and work to a very few individuals who have been performing miracles with peanuts. There are still many cynics on the sidelines, who live up to the old definition as a guy who knows the price of everything but the value of nothing.

The word is getting around to all airports and a strong, vigorous and effective national association of fixed-base operators is a near reality. We were particularly impressed with the Iowa and Minnesota meetings in February. Both groups are made up of the majority of successful airport service operators in each state. They are solidly behind their national organization and intend to increase rather than diminish their active support of the national program. These groups have money in the bank. The members pay their dues. It's unprecedented!

Threats Force Protective Measures

The nation's fixed-base operators might be accused of finally welding themselves together because of fear. Fear is an important factor. They've been burned so many times they are naturally gun-shy. They could be put out of business overnight by being denied materials or fuel. Many of the finer schools will pass away unless they are utilized for the war effort. An increase in the Federal tax on gasoline and the threatened "use charge" for use of the Federal airways system could hit them as hard as the airlines. The encroachment of housing developments around airports, the annexation of privately owned airports by cities, the appropriation of municipal airports by the military services continue unabated and offer serious economic implications.

The material situation is by no means completely secure and air space can be and in fact is being denied civilian aircraft. By presidential decree it is a felony now to fly over the Superior National Forest in northern Minnesota. There are some seventy-odd other national forests that might easily become, by dictatorial decree, verboten to the civilian flier. So there's plenty to be afraid of and the operators are beginning to wake up to that fact. Perhaps a little late but it's happening.

A final observation worth putting down in this report—one of the best friends of the fixed-base operator today is the average airport manager who recognizes the importance of healthy airport service institutions to his particular community and airport. No one is more alert to or more sympathetic with the operators' present problems than our airport management people. Walter Betsworth, manager of the Waterloo, Iowa, Municipal Airport, is fighting the battles for civil aviation every day of the week in his capacity of president of the American Association of Airport Executives. Airport managers of the larger terminal airports are also in there pitching. Typical of these are Louis Inwood, director of aviation at Kansas City and Bob Aldridge, head of the Twin Cities Metropolitan Airport Commission, who has placed Matt Ryan in charge of a secondary system of airports for the St. Paul-Minneapolis metropolitan area. Aldridge and Ryan are setting the pace for all other cities to follow in the matter of establishing adequate secondary airports for non-airline flying.

You can't sit down and whittle with these rugged individualists of commercial aviation, progressive state aviation leaders like Norbe Locke of Iowa, Les Shroeder of Minnesota, Eldon Stout of Oklahoma and Eddie Lynch of Massachusetts, or the veteran airport management people, without coming to the enlightening conclusion that should any Washington brass think they are going to cut off the water of little aviation without a fight to the finish, they have another think a-comin'! ★ ★ ★

LEADERS AT IOWA FLIGHT OPERATORS ASSOCIATION MEETING last month in Des Moines are shown above with their wives. At left are Larry Straley, and at right are tributor at Clinton who was re-elected president, and Mrs. Straley, and at right are Iowa Aeronautics Commissioner Norbert Locke and Mrs. Locke.
—(Photos by Sig Gudmundson of Van Dusen Aircraft.)

TRANSIENT AIRCRAFT

(Continued from page 20)

self collected $15,077 as agents for rent-a-car services in 1951 alone), more than $90,000 fell into the hands of hotel, motel and dude ranch operators for lodging, $80,000 went to cafes and restaurants, slightly more than $32,000 was used for entertainment at sporting events, theatres, night clubs and bars, $68,000 plus saw its way into the cash registers of merchants, and $34,000 probably went into medical care with doctors, hospitals, sanatoriums and pharmacists sharing the income.

The initial summary of Tucson's Transient Aircraft Survey covering the first twenty months brought to light six distinct marketing or trade areas insofar as this type of aircraft movement is concerned. They were then described and defined at length, in the order of their magnitude, as:

I—California
II—The Oil Bowl (Texas, Oklahoma, Louisiana)
III—Arizona (the local trade)
IV—The Grain Belt (the Dakotas, Nebraska, Kansas, Minnesota, Iowa, Missouri, Wisconsin, Illinois, Indiana, Ohio, and Michigan)
V—The Industrial East (New York, New Jersey, Pennsylvania, New England)
VI—New Mexico and Old Mexico

The incorporation of added information obtained during the twelve months of 1951 did not alter the original pattern. The Southeast, the Pacific Northwest, and the Inter-Mountain areas continue, as expected, to be rela-

Veteran Dust and Spray Pilots Hail New PIPER PA-18-A

With a capacity of 110 gallons (18 cubic feet) and amazing all-around performance for handling heavy loads off short rough fields and up over tree lines and wires, the Piper PA-18-A agricultural plane has literally been the biggest news in aerial application of agricultural chemicals since 2,4-D was developed.

Many former operators of heavier, more expensive, less maneuverable equipment are swinging to the PA-18-A and hailing it as the answer to lower costs, greater safety and more satisfactory application.

Little wonder it can't be matched. It'll get off the ground in 325 feet with 750 pounds of chemicals; it means landing and loading closer to the job; it has flaps for extra lift and good penetrating down wash; it has excellent visibility, wire cutters, shoulder harness and new light controls for pilot safety and flying ease. And it's dependable—ready to go when conditions are right. Maintenance costs are virtually nil.

For full information on the new PA-18-A write for new brochure to Dept. 3-F, Piper Aircraft Corporation, Lock Haven, Penna.

ATTENTION APPLICATORS

We know the PA-18-A's performance will speak for itself when you test it under actual operating conditions alongside your present equipment. We'd like to have you use a PA-18-A demonstrator under actual operating conditions and see for yourself. If, after fair trial, you're not convinced that the Piper is superior in performance or economy to any type of plane, we'll pay for the gasoline used. Write today for details.

Read What These Pilots Say About Pipers For Crop Work

Lloyd Williams, Dalhart, Texas: "My PA-18 had a spray unit installed on it before I ever saw it and has never been flown only for spraying purposes. It has sprayed about 10,000 acres in the short time I have had it and will out-perform any plane that I have had any dealings with, even with the sprayer unit on it. The toughest job that PA-18 had was in the cotton near Plainview, Texas. Small fields with high lines on four sides in some cases and two on practically all. The Super Cub has what it takes when you need it. I farm some 5,000 acres of wheat two miles from here on the north plains and do my own spraying. A lot of soft fields are used as landing areas, that would be out of the question with any other plane I know of. Also the short run of take off and landings are unbelievable to one not familiar with the PA-18."

* * *

Kenneth Babcock, McCamey, Texas: "I have worked my 125 as hard as a plane can be worked in the same period of days, I believe. I did all my own flying, shutting down only for the worst of weather. Many times, I've carried a full load of 85 gallons of spray fluid plus 38 gallons of gas at the start of the day. Any time I needed any extra "oomph", I just "popped" in a little flaps with instant results of greater lift. Without those flaps and that power I could never have dreamed of operating at all in the 100 to 108 degree weather at this altitude (2500'), carrying a full load all day long. I was able to cover as much acreage, gallon for gallon, as a 450 Stearman sprayer, due to the 125's ability for "close-in" operations and extremely short radius of turn, and same speed across the field: 100 mph!"

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNSYLVANIA

tively non-productive insofar as Tucson is concerned with only Florida, Oregon and Washington having sufficient density of ownership and activity to justify continuing, sustained efforts at cultivation of traffic.

The one significant change is a growing tendency on the part of the transient pilot to expand his radii of activity. Not only does he arrive from more distant and an increasing number of points, but his departures are being made with more discernment of the airport facilities and services said to be available. He will make longer direct flights, deviate from established routes, and by-pass heretofore accepted stops once he is assured that other factors, notably weather, are not likely to interfere—if he believes (or has been led to believe) that a given airport is the place to go in preference to others while en route. He is making fewer stops, unless dictated by business, and he is staying longer at those points where he does stop. Therefore, according to his personal dictates, he may not only expect more of the airport, but of the community which he favors with his call. The result is a two-fold task of convincing not only the transient user that the airport and the community alike are worthwhile stops, but of convincing the businessmen of the airport's trade area of the value of such commerce. Uptown indifference can negate an airport's efforts to stimulate activity, but the survey seems to indicate increasing popular acceptance of Tucson's facilities by the transient flier.

The conclusions we make:

(1) Since nearly 70% of both inbound and outbound transient civil aircraft arrive directly in Tucson from and depart non-stop to out-of-state airports, thus constituting but one stop in Arizona at Tucson Municipal Airport, the importance of advertising and publicity beyond Arizona's borders is apparent and cannot be left to happenstance.

(2) Since the points of origin and destination fall into definite behavior patterns, more particularly described as six marketing or trade areas, advertising and publicity can be beamed at these specific markets, and blanket coverage of all areas can be reduced if not eliminated.

(3) Since 87% of the aircraft landing at Tucson Municipal Airport, regardless of origin, last stop, or next port of call, are headed for an out-of-state destination, reciprocal arrangements with distant airports become practicable with obvious benefits to the en route airports and the customer alike.

(4) The potential of transient civil flying is sufficient to justify, and the already established volume thereof substantiates, the desirability of going after more of it. ★ ★ ★

AERO COMMANDER

(Continued from page 17)

can be turned on the ground within a 30-ft. circle.

Until full-feathering propellers, now being flight-tested on the Aero Commander, become available, it is equipped with constant-speed, hydroselective Hartzells with metal blades and having pitch limits of 19 degrees to 36 degrees. The full-feathering version now being flight-tested emphasizes simplicity, having a control by which a pin is sheared to effect instantaneous feathering.

Engines are geared Lycoming GO-435-C2 horizontally-opposed 6-cylinder, air-cooled models, each rated at 260 hp. at 3,400 rpm. for take-off and at 240 hp. at 3,000 rpm. for normal rated, continuous power. Gear ratio is 77:120, which allows the propeller to turn at slightly less than two-

(Continued on page 38)

Piper models were designed to serve your every purpose and need in business and pleasure.

The outstanding TRI-PACER, PACER and SUPER CUB offer the ultimate in air transportation with low initial cost and economical maintenance requirements.

Piper versatility qualifies every model for any job—on the farm, industry, for aerial application of chemicals and general utility flying.

Ask one of the firms listed to demonstrate how one of the Piper models can save you valuable time and money. These firms are prepared to serve all your aircraft requirements.

Arizona
ANDERSON AVIATION COMPANY, INC.
Sky Harbor Airport
Phoenix

Iowa
ELLIOTT FLYING SERVICE
Cram Field
Davenport

DES MOINES FLYING SERVICE
Municipal Airport
Des Moines

Oklahoma
SMYER AIRCRAFT SALES & SERVICE
Municipal Airport
Ponca City

Texas
BROWN FLYING SERVICE
Municipal Airport
San Antonio

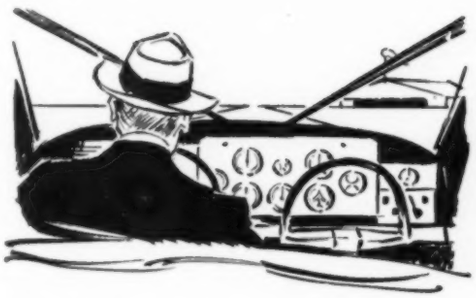
PARKER-HUETT AVIATION COMPANY
White Rock Airport
Dallas

Texas
WICHITA FALLS AIR TRANSPORT COMPANY
Municipal Airport
Wichita Falls

PIPER

For flying ease...

pick the PIPER TRI-PACER



There's nothing so easy to fly on the market today as the Piper Tri-Pacer. *Head 'er down the runway and you'll see what we mean....*

That tricycle gear holds you straight as an arrow. At proper speed just ease back on the wheel to start the climb . . . that's your only effort on the entire take-off.

Now leave your feet on the floor for the rest of your flight—*stretch them out in solid comfort*—the inter-connected rudder and ailerons make turning as easy as in your car with wheel alone.

Aloft, if you wish, try stalling the Tri-Pacer any way you know. Never have you seen an airplane resist bad treatment so well. Little wonder the Tri-Pacer has such a remarkable safety record.

Now pop those high lift flaps and note the just-right approach angle for really accurate landings. Still with your feet on the floor, if you wish, flare out and touch down, secure with the knowledge that the tricycle gear automatically straightens out drift. Then jam on the brakes as hard as you wish.

"Here's an airplane that takes the skill out of flying," that's what you'll say, we'll bet.

PICK IT FOR UTILITY AND PERFORMANCE, TOO

THREE OTHER GREAT MODELS. Piper also makes the standard *Pacer* with regular landing gear for maximum performance, the 90 hp and 125 hp two-passenger *Super Cub* utility plane that takes off and lands in less than 50 yards, and the *PA-18-A* agricultural plane that carries 110 gals. of spray or 18 cu. ft. of dust.

Amazed by this?—you've just begun to know the Tri-Pacer. Take it out in windy weather when most other planes stay in the hangar. Taxi, take off and land with comfort in gale-force winds.

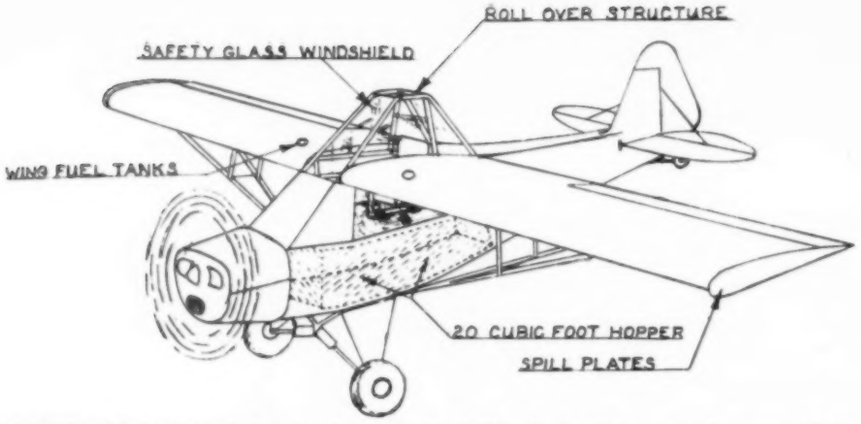
Fly off 400 miles for an important business deal and yet be home the same day thanks to the more than four-hour range and better than 120 mph cruising speed. Load three other people in and see how quiet and comfortable they all agree the handsomely appointed cabin is. You'll soon know this plane was built to go places fast and economically—so you can get more done in less time.

And finally, check the price—that'll really amaze you. Less than half the cost of any business plane with tricycle gear.

So fly and try the Tri-Pacer yourself—your Piper distributor has the latest 1952 model ready to demonstrate it. For his name and free, handsome brochure, write Dept. 3-F.

PIPER AIRCRAFT CORP.

Lock Haven, Pennsylvania



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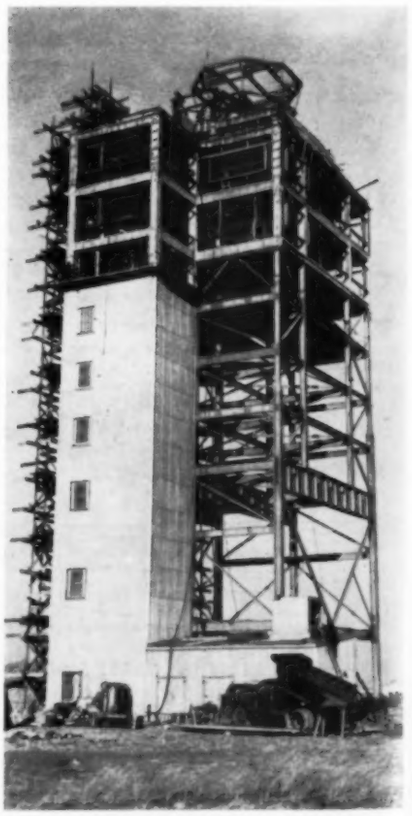


SKYSCRAPER CONTROL TOWER at New York's Idlewild Airport stands 150 ft. high. Top three floors will be enclosed. Closed middle section has stairs, elevator and service facilities. Nelson studs and collarnuts were used by a 4-man crew to rapidly apply asbestos siding to center section, using a Nelson end-welding gun to fasten studs to steelwork.
—(Nelson Stud Welding Photo)

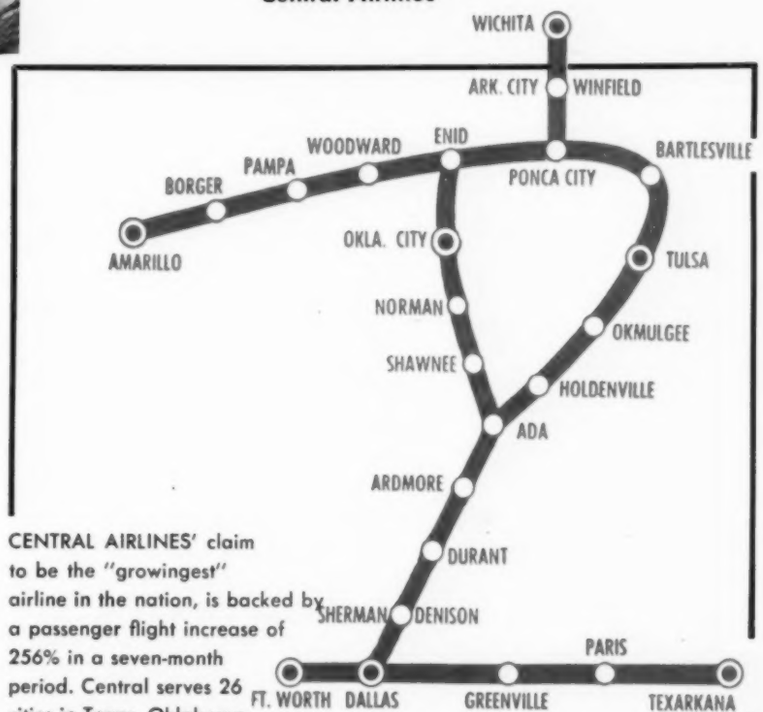
"OVER A ROUTE LIKE THIS... the extra full-throttle operation required calls for extra protection. That's why we use the finest—TEXACO AIRCRAFT ENGINE OIL,"

says Keith Kahle, President
Central Airlines

CENTRAL AIRLINES' local service schedule involves many extra stops. Constant use of full throttle on the increased number of take-offs doubles the demand on engines. So Central uses *Texaco Aircraft Engine Oil* exclusively . . . finds that it gives full protection, keeps efficiency high and maintenance costs low. Other leading airlines throughout the country agree. In fact—

For over 15 years, more revenue airline miles in the U. S. have been flown with Texaco Aircraft Engine Oil than with any other brand.

Dependable performance and real maintenance savings are just two of the benefits assured by Texaco Aviation Products and Texaco Lubrication Engineering Service. A Texaco Aviation Representative will give you full particulars. Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write The Texas Company, *Aviation Division*, 135 East 42nd Street, New York 17, N. Y.



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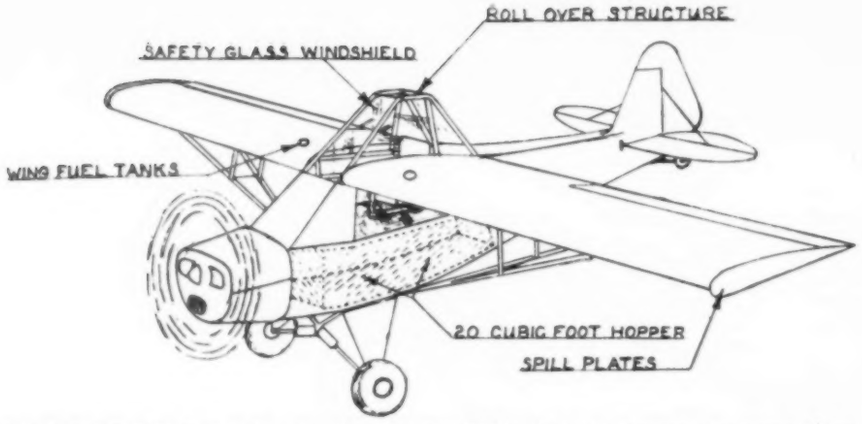
Faithfully yours 50 *for Fifty Years*

TUNE IN . . . TEXACO STAR THEATER starring MILTON BERLE on television every Tuesday night. METROPOLITAN OPERA radio broadcasts every Saturday afternoon.



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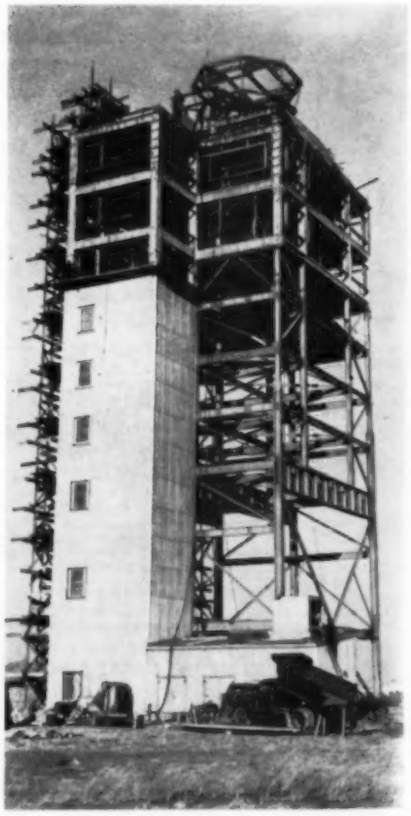

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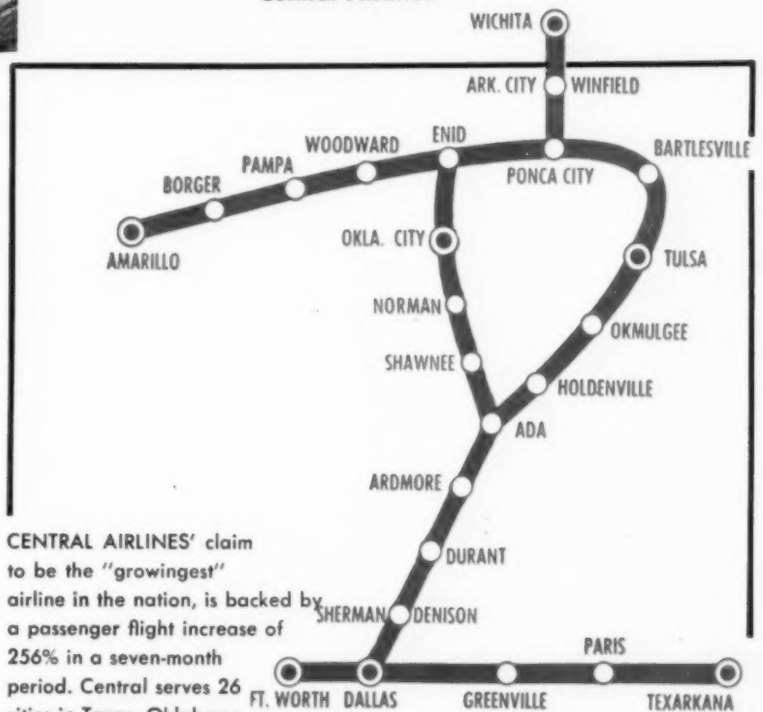

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5 reasons why

Beechcraft *Certified Service* is a good investment

1 Only Factory Certified Service Stations are authorized to make Beech-directed modifications. These companies get Beech bulletins promptly and follow them to the letter. They have direct, ready access to all official Beech data.

2 At any one of the BEECHCRAFT CERTIFIED SERVICE STATIONS you will find trained specialists who have devoted their professional lives to the work they enjoy as a skilled craft. Each person has been chosen because of his outstanding professional ability in his particular line of work and trained in Beechcraft methods by the factory.

3 When your Beechcraft requires the replacement of a part, you know the Beechcraft Certified Service Stations will use only factory-authorized parts. And more important, they will avoid the long delay that comes from not having the part in stock. Each of the Certified Service Station maintains a complete stock of parts for your immediate needs.

4 The extensive maintenance facilities available to you at Certified Service Stations are equipped to serve every overhaul and maintenance requirement. Special tools are used for each job, all designed after long-specialized experience in every phase of service and maintenance. These special tools are important to you for they minimize the time required to perform each job.

5 You will find that the efficient line service at all Beechcraft Certified Stations will save you valuable time. Important too, line service here will save you money through preventive maintenance. Each person servicing your airplane makes a check of all visible sources of trouble, calling each to your attention before development into major repairs. This is just one of the many extras you get at any of the Stations listed.

And you'll find intelligent, courteous assistance in filling your needs—the kind of attention you have a right to expect.

When you do business with the firms listed you can be sure your Beechcraft is receiving specialized attention.

Aircraftsmen, Inc.
Will Rogers Field
Oklahoma City, Oklahoma

Alamo Aviation, Inc.
Municipal Airport
San Antonio, Texas

Anderson Air Activities
General Mitchell Field
Milwaukee, Wisc.
Truax Field
Madison, Wisc.

Atlantic Aviation Service
New Castle County Airport
Wilmington, Delaware

Atlantic Aviation Corp.
Teterboro Airport
(25 minutes from Times Square)
Teterboro, New Jersey
also
Logan Airport
East Boston, Mass.

Butler Co., Aviation Division
Municipal Airport
Chicago, Ill.

Currey Sanders Aircraft Co., Inc.
Downtown Municipal Airport
Shreveport, La.

Francis Aviation
Capitol City Airport
Lansing, Michigan

Gray Aircraft Svc. Co., Inc.
D. A. Cody, Service Mgr.
Love Field, Dallas, Texas

Harte Flying Service
Municipal Airport
Wichita, Kansas

Hunter Flying Service, Inc.
Hunter Field
Cedar Rapids, Iowa

Ohio Aviation Company
Dayton Municipal Airport
Vandalia, Ohio

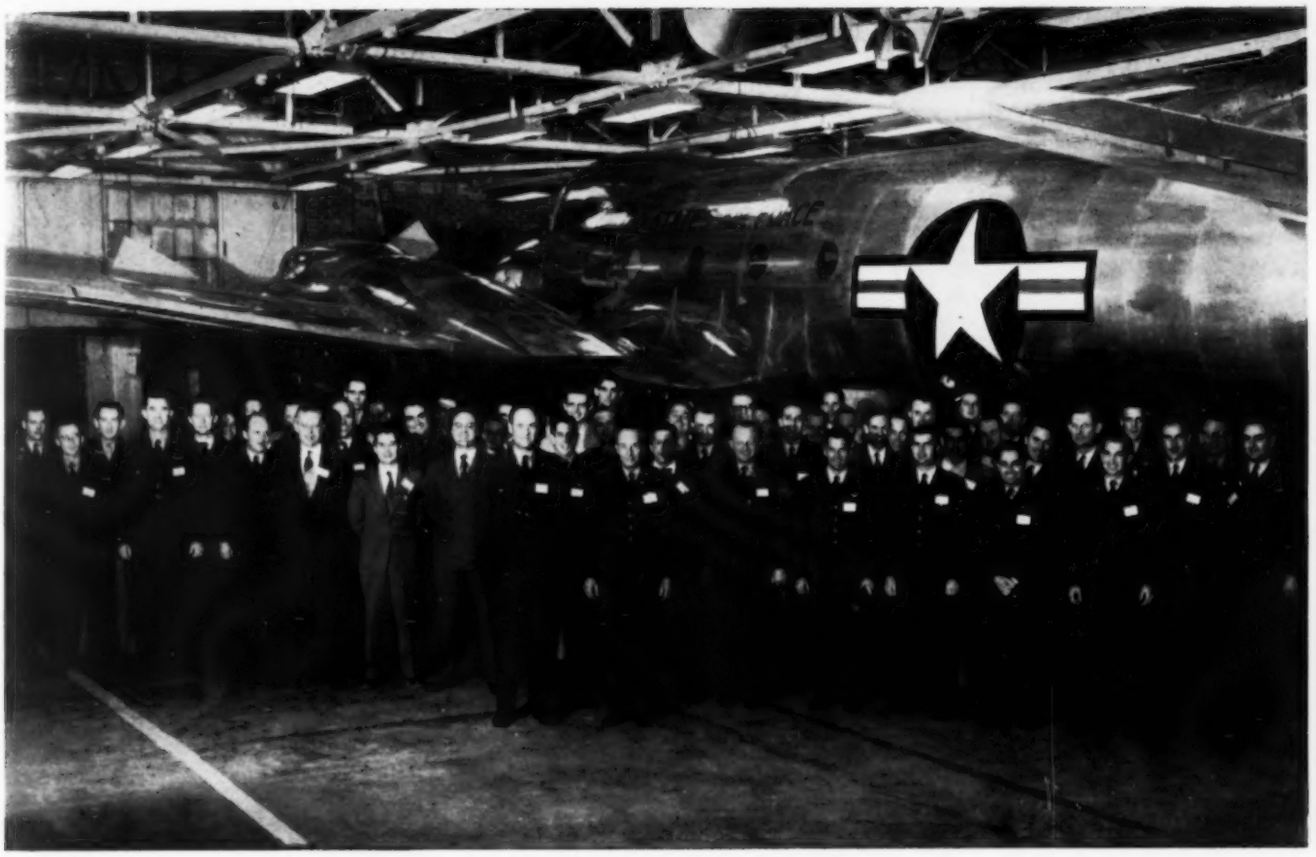
J. D. Reed Co., Inc.
Municipal Airport
Houston, Texas

Roscoe Turner Aeronautical Corp.
Municipal Airport
Indianapolis, Ind.

Tradewind Airport Corp.
Tradewind Airport
Amarillo, Texas

Tulsair Distributors, Inc.
Hangar 5, Municipal Airport
Tulsa, Oklahoma

Wings, Incorporated
Wings Field
Ambler, Pennsylvania
Philadelphia International Airport
Philadelphia, Pennsylvania



TEAMWORK

The photograph shows the majority of the members of the U. S. Air Force Mock-up Inspection group for the Beechcraft T-36A training airplane, posed in front of the dummy or "mock-up" T-36A prototype.

It is estimated that the total aggregate aircraft experience of the members of this board greatly exceeds 500 years. These specialists in Structures, Aerodynamics, Aircraft Power Plants, Electronics and Radar, Flying Safety, Pilot Training, and many other phases of aviation, all made contributions to the design of the T-36A Beechcraft.

The composite thinking of this group, together with the aircraft designing experience of Beechcraft's Engineering Department, has combined to insure an outstanding new training airplane for the U. S. Air Force.

Such teamwork between Government and Industry insures maximum economy in connection with the procurement of new types of defense equipment. Less than five months elapsed between the date of the contract and the date of the meeting of the Inspection Board.

Beech Aircraft

CORPORATION WICHITA, KANSAS, U. S. A.

AERO COMMANDER

(Continued from page 32)

thirds of engine speed. At 2,700 rpm., for cruising, the engine turns the propeller at only 1,800 rpm.

The Aero Commander's fuel system eliminates the need for switching from tank to tank while flying. As detailed in a sketch accompanying this article, there are five U. S. Rubber Co. fuel cells in the wing, interconnected with large 1.5-in. lines so as to serve as a single unit having 150-gal. total capacity (145 gals. usable). Separate outlets from the center tank feed fuel to the engines. This permits operating both engines or either on the total amount of fuel, eliminating the need for tank selection valves and multiple fuel gauges. Either engine's fuel supply can be shut off in case of single-engine operation. A dual type fuel quantity indicator is on the instrument panel; one gauge reads for all fuel above 20 gals. while the other reads for the first 20 gals. used for reserve fuel gauging.

This fuel system provides another interesting feature—single-point fueling. The filler inlet is located atop the right wing, accessible from the front, and will accept 27 gals. per min. for fast servicing.

Standard equipment in the Aero Commander's price and 3,600-lb. empty weight includes artificial horizon, directional gyro, two turn and bank indicators (1 electric, the other air driven), rate of climb and clock as well as the usual flight group of instruments; complete dual engine group; Hartzell constant-speed, all-metal propellers (feathering propellers when available); Lear VHF transmitter-receiver; cabin speaker; ventilating and heating system with blower and Janitrol heater; complete lighting; complete soundproofing; and standard seating of two forward seats and a 3-pl. rear seat 51 ins. wide.

Landing lights are mounted in the nose, one on each side, where they are forward of the propeller arc and below the pilot. The electrical system is 24 volt, and the battery has been made easily accessible—it is mounted on a sliding rack located behind the baggage compartment. Open a hinged access door and the battery rack slides out into the open.

By early summer a nationwide demonstration tour will be made by a factory demonstrator visiting Aero Commander distributors from coast to coast. These are listed by Sales Manager Carl Wootten as follows: Air Sales & Service, Inc., Indianapolis; AiResearch Aviation Service Co., Los Angeles; Buffalo Aeronautical Corp., Buffalo, N. Y.; Carolina Aero Company, Asheville, N. C.; Downtown Airpark, Oklahoma City; Great Lakes Airmotive, Detroit; Rocky Mountain Air Service, Cody, Wyo.; Southern Aero Sales Co., Atlanta; Stonnell & Holladay, Washington, D. C.; Trans-Texas Airways Aero Sales Division, Houston; Van's Air Service, St. Cloud, Minn.; Art Whitaker, Vancouver, Wash.; Arthur Meurer Co., Inc., La-Guardia Field, N. Y.; and Morgan & Waltz, Central Airport, Mexico City.

Availability of the Aero Commander is certain to make an impact on the growing utilization of private airplanes for transportation. Last year, the Aero Commander prototype became the first twin-engine airplane in aviation history to make a single-engine take-off from a standing start, one of its propellers having been removed. Off the ground, it flew on one engine 1,160 miles non-stop to Washington, D. C., in a demonstration of its outstanding safety and efficiency. Its twin-engine safety and reliability will prove attractive to a large segment of business flying now using leading single-engine airplanes. Through night and instrument flying, it will open new areas of travel opportunity and thus increase the usefulness of private flying to those who need it. The Aero Commander also appears to fill the gap between small planes and the transport category—it should be an ideal "in between" for the usual transition facing users who find lightplanes a little shy of their needs and transports excessive. Users of transports will find the smaller Commander's safety, high performance, range and comfortable cabin a valuable auxiliary or supplemental means of achieving flexibility and efficiency in their air operation.

★ ★ ★

WORLD'S FIRST 2-PLACE JET LIGHTPLANE is this Sipa 200, built in France by Societe Industrielle pour l'Aeronautique and flight-tested in January. It is powered by a Turbomeca "Palas" turbine of 330 lbs. thrust, has 870-lb. empty weight, 1,609-lb. gross weight, 23-ft. span and 17-ft. length. Calculated cruising speed is 236 mph. for range up to 435 miles.
—(l'Union Syndicale des Industries Aeronautiques Photo.)

JUST AMONG OURSELVES

(Continued from page 9)

were given personal interviews, written and oral competitive examinations "on a strictly scientific personnel administration basis." These men were graded 20% on the individual interview, 30% on the group oral interview, 25% on a 78-question IQ test *and only 25% on background and experience!*

As a result of this silly "testing system," men who have their permanent homes in various cities are being ruthlessly busted in rank and moved into other regions, some of them with as much as two decades or more of service with the agency—the men who have grown up with this business and are personally acquainted with nearly every individual and situation in their home territories. What a reward for long years of faithful, conscientious work in the service of Uncle Sam!

We were unable to get a copy of the IQ test because it is a "top-secret" document. But who among us couldn't concoct a similar test that even the oldest college professors might fail? Just how ridiculous can the government get? There are plenty of cases on record of empire building in past years, and this case certainly brings them all to mind. *Twenty-five per cent for experience!*

As for the reduction of CAA air traffic communications personnel and the elimination of the airport management services, the industry will have to share some of the blame. Nearly every U. S. citizen is fed up with wasteful spending of Federal funds

IN THE ARMY NOW is this YL-23 military version of the Beechcraft Model 50 Twin-Bonanza, four "hand-made" units of which were recently delivered to the U. S. Army Field Forces. It is Field Forces' first twin-engine and largest fixed-wing airplane. —(Beech Photo.)

and agrees in principle that every effort must be made to plug up the loopholes and get back to efficiency and reality. But to cut out the heart and soul of a necessary agency's constitutional duties is not desired even by the most rabid reactionaries and proponents of economy in government.

Elimination of airport management services and reducing the air traffic communications people are typical examples of straining at gnats and swallowing camels, comparable only to the ridiculous waste of funds by the military services in taking over large terminal airports and kicking private industry all over the place at a far greater cost to the taxpayers than building entirely new military fields or expanding old war-surplus properties.

Commercial aviation in the United States is just as important to national defense as military aviation. The threat of imposing higher Federal aviation fuel taxes on the industry and ridiculous use charges for the right to use the Federal airways system is a real one, inspired by surface carriers and enemies of aviation in the Congress. Right now the CAA is throwing the axe around on the basis of cutting out activities not related to national defense. In the process it looks like they are willing to sacrifice those vital services which guarantee healthy civil aviation facilities, while the military machine squanders millions upon millions without batting an eye.

The industry must get together and determine just what is related to national defense and what isn't. It certainly is evident the CAA's present position is a far cry from the situation in days gone by when it stood firmly on two feet and fought for the preservation of its functions related to civil aviation's strength and development. We appreciate the fact that CAA can not go out and seek widespread support of its budgetary requirements. That's where the industry comes into the picture—start taking the initiative by screening CAA's plans and programs, then go forward and do something about it. Here is a real challenge to all the trade associations that make up the Conference of National Aviation Organizations.

There's at least one stout aviation organization standing up to be counted and working on one aspect of these bitter CAA changes. It's the American Association of Airport Executives, whose leadership has this to say to its members about elimination of the airport management and operations advisory service:

"You all know only too well the vast amount of assistance that Pete Hughes, Charlie Hanst, Hans Omenitsch, Bill Brown, Clyde Pace and Joe Hicks have rendered to you and your community. Their elimination started as an economy move. In reality there will be no cash saving because instead of having an advisory service to come around and recommend good operation, safety and maintenance practice, the CAA intends to put on a number of policemen, called compliance men, to order you to do thus and so. We don't need any more snoopers; we need practical advice." ★ ★ ★

FOR the BEST in RADIO SERVICE . . .

Require: Experience in workmanship and the finest quality materials.

Matthews Electronics is highly qualified to give the aircraft owner specialized engineering and consultation service on his present or contemplated radio equipment. We will make planned proposals for special designed installations. Whatever your needs in aircraft radio MATTHEWS offers superior products with built-in qualities of excellence and the experienced technical knowledge that defies competition.

MATTHEWS ELECTRONICS
(Located in the Beechcraft Hangar)
Municipal Airport San Antonio, Texas

QUESTIONS AND ANSWERS

(Continued from page 34)

discussion—some sort of organization for the purpose of merchandising, managing and improving the operations of the local public airport.

The best form of organization of which we know is an airport board or commission. Now what we mean by board is a group of local citizens, probably five in number, serving without pay and selected from the substantial citizens of a community for the purpose of administering the affairs of an airport. They must have some interest in aviation but above all things they must have some interest in the community, an interest that everybody recognizes. Contrary to the beliefs of some, it isn't necessary that the board be composed entirely of pilots, although it is a good thing to have a pilot on the board.

If that board is set up in such a way that the members serve staggered terms over a period that does not coincide with the term of office of elected officials, it makes for continuity of administration without sudden abrupt changes of the entire personnel. It should be established legally by ordinance or resolution and preferably by approval or ratification of the voters.

Now if that can be accomplished, what purpose will it serve? Here is what it has done for many communities and their officials. First, a board of well selected and truly interested members has proved, in many towns where it is tried, to be an effective instrument in improving operations and services for the public, maintenance, revenues and general public consciousness. It is able to do this because its concern with the community functions of the local government are limited to the airport. Normally your city officials are busy all day long with streets and sewers, water and lights, complaints and taxes, parking meters and jails and dozens of other matters that all the citizens expect of them. They do not have the time and in many cases the know-how or the interest to work assiduously on the airport problem. Your board or commission can do this. It can screen for the city officials all the matters that affect the airport.

Second, such a board, through its considered judgment of proposals, improvements and operations, can lend measurable support to the elected

TWIN-ENGINE BRISTOL TYPE 173 TRANSPORT HELICOPTER developed in England is designed to carry 12 to14 passengers. Shown on initial flight test at Filton, Bristol, it is powered by two 550-hp. Alvis Leonides radial engines.
—(Society of British Aircraft Constructors Photo.)

KLIPTIP
MET-L-PROP
FORGED STRENGTH
McCAULEY CORPORATION
DAYTON 7, OHIO

McCAULEY REPAIR SERVICE IS "TOPS" LIKE THE PROPS

Damaged props are straightened, aligned, polished, buffed, balanced, given a caustic etch bath, anodized to satin finish, painted and

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Play safe . . . let the original makers do your repair work. It costs much less, too.

McCAULEY CORPORATION
1840 HOWELL AVE., DAYTON 7, OHIO

MET-L-PROP
TOPS in PROPS FOR LIGHT PLANES

MET-L-PROPS GIVE YOU WHAT FLYING CHAMPS DEMAND

. . . shorter take-off
. . . faster climb
. . . smoother cruise
. . . lower overall cost
. . . carefree flying

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—(Gray Audograph Photo.)

officers of the owning agency.

Third, the existence of a board or commission which has a sustained term without disruption can effectively offer to the tenants and users of an airport a better continuity of responsible policies and practices because they are not changed every election day. The people who invest their money and their time on the airport have just reason to expect such continuity of good policy.

Fourth, such a board or commission when formed and well selected means there are that many more people interested in the airport.

Now, your key man is going to want to know where he can find out about boards in other towns, how they are established, what their powers are and what their duties may be. This information can be secured in most cases from the district airport engineer of the Civil Aeronautics Administration, since he deals with many towns. Your state director of aeronautics can help in that too. Incidentally it may be a good idea to invite him also to your initial meeting.

Let's look at what this does to getting the airport before the people of the community. The first meeting is a news item. It brings to the consciousness of the community the fact that it has an airport and there is interest in it. The promulgation of the board or commission idea is a news item. It keeps the airport before the public. If one of the members selected is a newspaper man or an advertising man or trained in the value of news, through him news items keep flowing to the paper. Let's look at what is meant by news in that event. News is essentially the names of the people and the stories of what they did. If Mrs. Jones flies to the state capital to visit her daughter, that is news in a town of your size and other women will wonder why they do not fly. If Mr. Wilson has a sudden heart attack and they bring him back to town by charter aircraft, that is news. If Mr. Brown buys an

Airmen's Calendar

March 14—IAS 7th Annual Flight Propulsion Meeting, Cleveland, Ohio.

March 30-April 3—Convention of American Association of Airport Executives, Fort Worth, Texas.

March 31-April 1—First Annual Agricultural Aviation Conference, Sponsored by Texas Aeronautics Commission, Texas Flying Farmers, and Texas A. & M. College, College Station.

April 4-6—Montana Pilots Association Convention, Helena, Montana.

April 21-24—National Aeronautic Meeting and Aircraft Engineering Display, Society of Automotive Engineers, Hotel Statler, New York.

May 8-9—5th Annual Wisconsin Aeronautics Conference, Green Bay.

June 1-July 15—International Soaring Championships, Madrid, Spain.

Aug. 19-30—19th National Soaring Contests, Grand Prairie, Texas.

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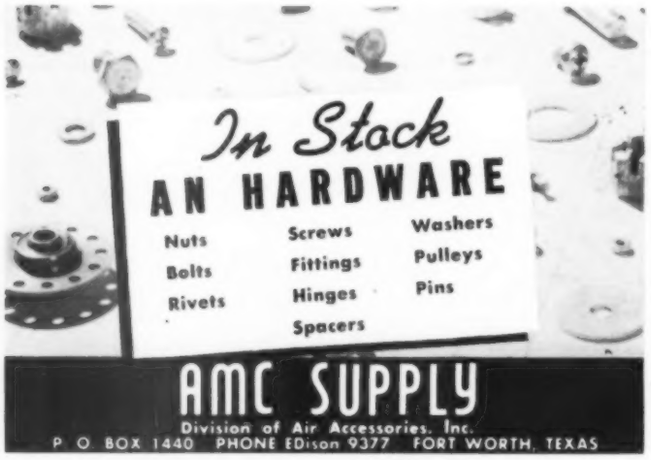

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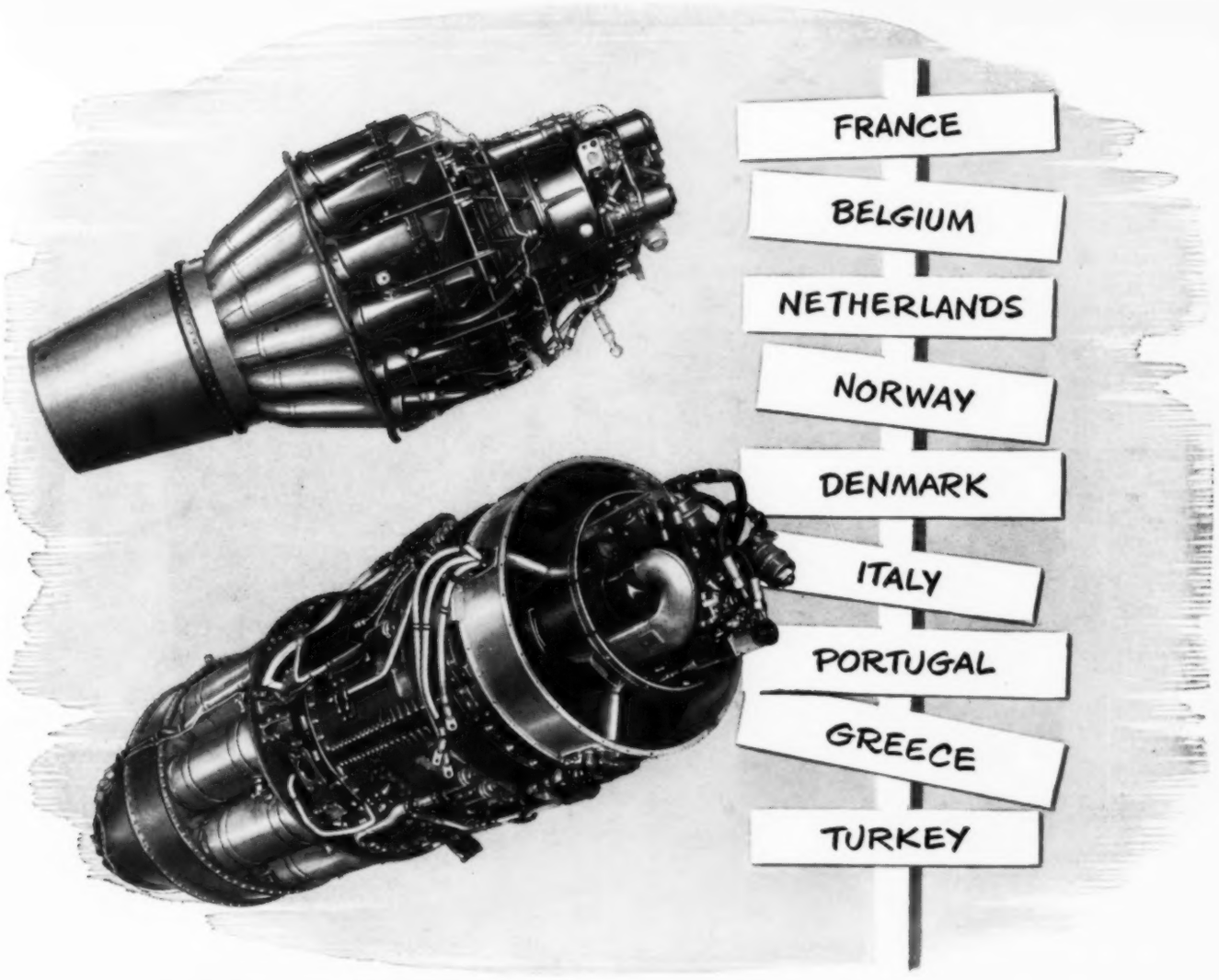

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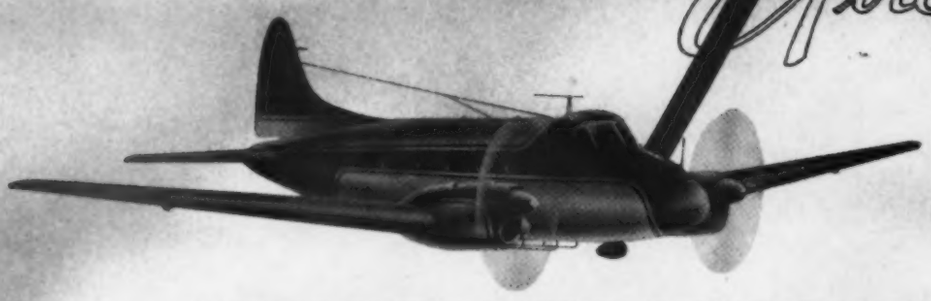

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